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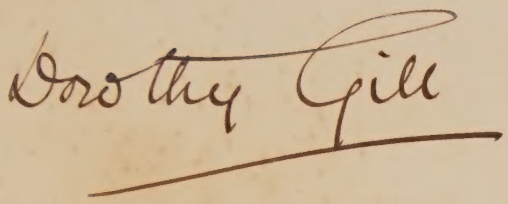
Dorothy Gill

THE ENGLISH FLOWER GARDEN
AND HOME GROUNDS

First Edition, *November* 1883.
Second ,, *February* 1889.
Third ,, *May* 1893.
Fourth ,, *June* 1895.
Fifth ,, *June* 1896.
Reprinted, February 1897.
Sixth Edition, *May* 1898.
Reprinted, November 1898.
Seventh Edition, *May* 1899.
Eighth ,, *June* 1900.
Reprinted, December 1900.
,, *May* 1901.
,, *June* 1902.
,, *June* 1903.
Ninth Edition, 1905.
Tenth ,, 1906.
Reprinted, March 1907.
Eleventh Edition, 1909.
Reprinted, January 1911.
Twelfth Edition, 1913.
Reprinted, May 1914.
Thirteenth Edition, 1921.
Fourteenth ,, 1926.

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THE ENGLISH FLOWER GARDEN

AND HOME GROUNDS of Hardy Trees and Flowers only, by W. ROBINSON, with Engravings on Wood. Fourteenth Edition.

Fair Quiet, have I found thee here,
And Innocence thy sister dear!
Mistaken long, I sought you then
In busy companies of men:
Your sacred plants, if here below,
Only among the plants will grow:
Society is all but rude
To this delicious solitude.

ANDREW MARVELL.

It is delightful to see how English people have carried their artistic sense and flower gardens into their colonies and settlements.

COUNT FRITZ HOCKBERG, *An Eastern Voyage.*

London John Murray Albemarle Street

mcmxxvi

PRINTED IN GREAT BRITAIN BY
THE EDINBURGH PRESS, 9 AND 11 YOUNG STREET, EDINBURGH

PREFACE TO NEW EDITION.

THE first editions of this book were burdened with much about the ways of flower-gardening current at the time; many thousands of plants set out in May or early June in formal and geometrical array, the result a bad carpet. Experience has taught me to throw overboard all tender plants and devote the book to hardy things only, that may be planted in the open air on every fine day in the fall or winter. Among those that do not meet our open air needs in this way are variegations of many sources, nearly all forms of disease.

Tropical weeds that give a little showy colour for a few months and plants that do not flower in cold districts if at all; coarse herbs that rob the ground and give little return in beauty; palms never at home in look in our clime. This is not a theory but a record of what took place in my garden for many years past.

As this book is now to be given to hardy trees and flowers, we begin at once with the work and with the home landscape. As the use of hardy flowers only is urged, an example is given of my flower garden planted that way every fall.

English names are given where possible—as it is best to speak of things growing about our doors in our own tongue, and the practice of using in conversation long Latin names, a growth of our own century, has done infinite harm to gardening in shutting out people who have a heart for a garden, but none for the Latin of the gardener. There is no more need to speak of the plants in our gardens by their Latin names than to speak of the dove or the rabbit by Latin names, and where we introduce plants that have no good English names we must make them as well as we may. Old English books like Gerard were rich in English names, and we should follow their ways and be ashamed to use for things in the garden a strange tongue. Every plant grown in gardens should have an English name, among the many reasons for this being the frequent changes that Latin names undergo in the breaking down of the characters which are supposed to separate genera. For instance, Azalea and Rhodo-

English names.

dendron are now one genus. Such changes are even more troublesome when they occur in less well-known plants; and one of the most beautiful plants of our gardens, the Irish Heath (Dabœcia, now Boretta), will not be found now by its hitherto recorded name in the London Catalogue of British Plants. But if we have a good English name, these ceaseless botanical changes are of less consequence.

Gardening and Botany.

One of the first things the lover of flower gardening should do is to get a clear idea of the distinction between gardening and botany. Gardening is an inexhaustible art; botany is a world science, and the great mistake is to consider gardening from the point of view of the botanist. To the botanist every plant, weed or poisonous herb is of equal value, which is right from his point of view, but the gardener must be very careful not to take that view. Numbers of plants which have lately come to us from China are useless for the garden, though, along with them, there are beautiful garden plants. The old botanic gardens of Europe were often planned as though the garden were a sort of book, and we see the results of this in many gardens abroad. It is neither artistic nor natural. Where garden space is often limited and labour scarce, the garden should only be given to plants of garden value. It is impossible to get the world's flora represented in it, and a garden made by a collector is rarely beautiful. Colour, stature and form should come before any botanical consideration. Even beautiful plants like the Clematis, Honeysuckle, etc., may be found after trial to be, many of them, not worthy of a place in the garden compared with others. The gardener is very much indebted to the botanist for his own work, that is the naming of plants, and also for discovering new species of plants. Botany teaches us the native habitats of some of our most beautiful garden plants, also about the flora of many countries, and can teach us many lessons which can be learnt with great pleasure, but there cannot be any proper system of teaching young men gardening unless they are taught the plants of their own country. When it comes to design and landscape gardening one may learn more in some of the back valleys of the Tyrol and parts of Switzerland than from any book, though books on the flora of countries like our own as to climate may tell us what we want to know about the habitats of the plants and trees we wish to know.

"Lumping" is a term sometimes used for botanists throwing things together that are distinct in life or cultivation. Botanists often work in herbaria so that things come together that in cultivation in the living state are really different. An example of this is placing the Austrian and Corsican pines under one species, whereas in Nature and in cultivation they are clearly distinct in form and stature. In botanical books we frequently find changes of genera made often without much reason. This shows the need for an English name. Not only is it difficult to follow the changes in Latin names in many cases, but these names are also very ugly and awkward, as, for example, *pseudo-stuga* applied to one of the greatest of trees.

Changing names.

Botanical books are often empty as regards the garden value of plants. Great works, like those of Don and Miller, afford us no guidance for the garden value. The objection does not apply to the floras of countries which may be rich in plants and trees of value.

So many things are coming from strange countries to our gardens that one is often led to plant shrubs that have but little chance of doing well. I thought myself very careful not to plant what I did not know to be quite hardy, and so came my mistakes with even hardy plants that did not flower well. The Rose of Sharon, which is beautiful in France and also in our country, I planted a large group of. It grew well for many years, but never flowered, and seeing it was hopeless, I gave it to a friend in the Thames Valley, where it grew and flowered well. In the southern part of Sussex it flowers admirably. The Winter's Bark, of the Straits of Magellan, grew and flowered well for a few years and then was suddenly cut to the ground by a hard frost. Clianthus, which does very well near the coast-line of Ireland and the West Country, died after trials, and several Mutisias, too, which Mr Beamish, in Cork, grows so well, and no doubt many others in Devonshire, died without much loss of time.

What is the good of risking such things when there are many plants of N. America and other lands which are really hardy? It is not only the difference between Aberdeen and Worthing one has to think of; it is the much wider one of things in the same county. Some plants that failed with me do thrive below the Downs. The soil is a thing to be reckoned with, and no doubt my soil on

a cool hill was against the Rose of Sharon, which, perhaps, a hundred miles further north, on a free soil, would be quite happy.

The present Edition has the advantage of the herbaceous plants having been carefully revised by Mr E. M. Jenkins, who had a very good knowledge of these plants, and Mr Ernest Markham, who has charge of trees and shrubs in my garden, has brought these up to date so far as known, as many of them are not fully tested in gardens yet.

"*Another thing, also much too commonly seen, is an aberration of the human mind, which otherwise I should have been ashamed to warn you of. It is technically called carpet gardening. Need I explain it further? I had rather not, for when I think of it, even when I am quite alone, I blush with shame at the thought.*"—W. Morris, *Hopes and Fears for Art.*

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THE

ENGLISH FLOWER GARDEN

PART I

THE ENGLISH FLOWER GARDEN

CHAPTER I.

LANDSCAPE MISTAKES NEAR THE COUNTRY HOUSE.

It may not be clear to all that gardeners have to do with the landscape, but this they have to do to a great extent, if the comfort of all who live near is to be thought of. And it is not a question of "formalities or informalities," to use a term now often misused, but of the earth itself, and has no reference to plans.

In diversified land, roads are not so easy to make as in the plain, but in all cases they should have every care we may give. I went once to see the home of a poet of repute, and to get in was met by five different roads to find my way to the house. Where farm lands are in the same estate there may be reason for a separate entrance, the rule in this, as in all cases, always being not to make a yard more road than is needed for the work of the place. Grass walks help much, and may lessen the need and cost of the gravel walk, especially in wood or pleasure ground. The line of road is very important, taking the easiest grades, not always the shortest. Often the shortest way is the worst. The way in should show as much of the beauty of the land as possible. For centuries the way in to Gravetye from Turner's Hill was through the smugglers' lane, from which no view of the country near could be seen. Some land near gave place to a new road, airy, easy of grade, and with good views of the country near. Where needless roads are formed, an evil is cutting up the ground and destroying all repose. Too many roads and walks are enemies to good landscape views as well as to economy.

The way in deserves our best thought.

Much of the land in the home counties is injured in effect by iron-bound clumps of trees, costly to form and giving no shelter to man or beast, and breaking up the repose of the scene. The right way is to study the ground carefully, fix as far as may be the planting to

do, what trees may best serve in sheltering house and grounds from the north or east, and after due care as to the quality of the ground, planting the poorest as a wood. Even the same space given to harmful clumps planted as a wood, which might do the work of a wood in giving much needed shelter, often give a home to birds, with shady walks through, affording a pleasure the clump never does.

Clump planting bad.

This is a most serious defect: the loss is seen in many places where planting is done. The work is often done without control by labourers who plant to a face a mixture of trees or shrubs. Not many years pass before these discordant elements begin a struggle, which ends in ugliness or disease. The trees of New Zealand may be seen with those of Oregon with "filling up" of Privet or Cherry Laurel. The whole as it gets old is a sad comment on our way of planting. If a collection of trees or shrubs is planted that way, the result is no better. Half a dozen kinds of trees grouped in a natural way may be a picture, even if it were of our native trees only; say Ash on a Down farm, or the Cedar of Lebanon as a group, or our native Yew massed in a covert. This way leads to pictures in the home landscape; the mixed muddle spoils all.

Loss of grouping.

The worst of all these is the Field Elm, not a native tree, with suckers all around, and so facile of increase that it soon took place everywhere. A poor, short-rooted tree, that in gales is often blown down wholesale, and with the fault that it may kill us on a fine summer day. In a village called Stoke, were once planted this Elm along all the roads near, and after a gale all were blown down in field and road. Desolation is a weak word to use to tell of it. The tree has not the dignity and fine form of our Oak, Ash or Beech, and should not be planted near a house or any path. And apart from this tree, no forest tree should ever be planted near a house of any sort. Neglect of this rule leads to serious accidents, as this from the *Times* will show:—

Dangerous and ill-placed trees.

WORCESTER.—At Bromsgrove Isolation Hospital, three large trees were blown down and fell across the Tuberculosis Pavilion, smashing the roof of the women's ward, where there were eleven patients. Branches came through into the cubicles, but the patients were removed without injury. As this work was proceeding, a large chimney-stack over the servants' quarters fell and crashed through the roof into a bedroom. Another chimney on the administrative block also came down. The country-side is littered with uprooted trees.

Such accidents often arise from careless planting without thought of the stature of the trees. Forest trees are often overplanted by

roads; time flies, and soon the trees are a danger, and have to be boughed—often dangerous work. Mistakes, too, are often seen as to the place of trees; Lombardy Poplars, a tree of the water-side, in dry ground; noble Cypress-like trees of N.W. America almost jammed against the house; Weeping Willows in dry fields.

Gravetye Manor (built 1596), Sussex.

Some garden delusions.

The most frequent of these is the sunk garden. That is to say a garden sunk like a big grave and for no good reason. The difference of level leads to much increase to the labour of all seasons. To those who have to move in chairs it is an effective way to prevent them seeing the charms of the flowers. No one who had a garden in his head could have thought of the plan—more likely the work of an office clerk busy with his pencil. Shelter? Better begin on the natural ground and not seek it in digging a hole. And in the garden in any general sense the more we keep on high ground the better.

The clayed books of our day on Italian gardens lead some on a false pursuit of the Italian garden—a failure in our clime and the

result often absurd. In Ireland too, once the land of saints, a man attempted it in an Isle, in the vain hope of making it into a Borromean pleasance—the result a failure. The statues have to be wrapped up in winter or they might dissolve. In Eastern America the statues are carried indoors for the winter, and that sort of gardening tends to conceal the truth that a garden is a thing of life and beauty that does not arise from any stone-work.

The Italian garden in the British Isles.

This parody on the true garden is still rife in France and Belgium. To make a flower-bed to imitate a bad carpet, and by throwing aside all grace of form and loveliness of bloom, was indeed a dismal mistake. There was a comic element seen in its doing—a plank supported by two large pots in the bed and two men on the plank pinching some hapless plant to get it carpet depth. The same hapless idea has sometimes been attempted with dwarf Box, and in one case near London hundreds of hapless Yews cut down to the heart to form a green carpet a few inches high.

The carpet garden.

This is against natural law in all ways. For a true flower garden one must have freedom to select from every source of beauty among hardy things. To confine the planter to one colour cuts off many beautiful things and robs the scene of variety, a main source of beauty. Throw the very idea aside and think of the only rule worth an aim—the exclusion of all ugly things of any form. Also those that rob by their vigour, robbers of the good soil and give little back; plants that one dislikes, why, one may not always explain; and, lastly, plants that hate our soil and refuse to thrive in our flower garden.

Gardens of one colour.

There are only the good and the bad. If taken to see a Dutch garden, we may find it very like an English one: and the first effect of our gardens is to be English: formal, informal Dutch, Italian names, best thrown aside, are often misleading.

Styles.

The Panel garden in origin was born of the attempt to oust the gardener from the garden. The designers had no thought of the needs and constant work of the garden, and so used drawings meant for flat surfaces on ground which might be alive with beauty. The result is a garden as bare of life as a piece of oilcloth. Many of the show gardens of Victorian days were designed in this deadly way and may still be seen. What is the right way in a garden site with every advantage as to position? Why, to make it a place for a real flower garden, with simple beds, which allow a good gardener to do his best work.

Ivy-covered Bower.

CHAPTER II.

SOME EVILS OF BEDDING AND CARPET GARDENING.

COST of building, repairs and care of hot-houses to protect plants not so beautiful as the flowers hardy in our clime. Two movements of earth every year: to pursue this was false, needless to follow the lasting way. Plants only planting out in midsummer, when half the flower charms of the year are past; misuse of glass-houses which might grow welcome food in the spring; keeping up the race of "housemen"; often useless in the open air. A roomy shed facing south is all that is needed for the flower-garden work in winter.

Cost.

Getting rid of the flower garden itself, a frequent thing about country houses, the owners finding the cost and ugliness of the system not worth having, and so they turn the old flower garden into turf, of which there is usually plenty to be seen near. The old English and French (Fleuriste) way of a garden within view of the house was the right way, and we must go back for the true garden. The worst of the evil is the expelling of the more precious flowers, not allowed in the spectacular show, has passed for a garden in our day—Lily, Rose, Virgin's Bower—all the fine hardy plants, from the lovely Pasque flower of the spring to the splendid Cardinal flower of the fall, and the annual flowers of California and Australia, including some of the fairest flowers known. Getting rid of the pleasant work of the fall in the true flower garden, where every

Riddance of Flower Garden.

fine day is precious in all ways. Every year brings need of change: tried Roses to be planted, failures thrown away, bulbs of value planted, surface plants changed—these being shallow rooting are better for a change—turned out ready for Carnations and other hopes of the coming year. The permanent plants, like Clematis or Rose, should not be disturbed for years. Good edgings in the garden are precious and need much improvement in our day. Some Alpine flowers thrive if well planted. Some of the prettiest rock plants may be used as edgings, and all these good features were driven away from the flower gardens by the bad ways in vogue.

Moat Cottage, Gravetye Manor, Sussex. Moated in Wolf days.
Roof, Horsham stone.

CHAPTER III.

MISUSE OF THE YEW TREE IN GARDENS.

THE Yew tree in its natural form is of good colour at various seasons; bronzy on some soils in winter, the flowering time, the fruiting time and, in the Fall, full of fieldfares seeking food when driven from the North. It is only in old trees that we see its varied charm, always showing the stem so fine in colour; but as most of the gardens of our day only show, in the Yew, hard, dark lines, to give backgrounds, hence many miles of this forest tree in every home county, offering us hard, dark lines, where all should be free and graceful. And in this, the land of our noble native Cedar, it is cut into absurd forms, seats and, worst of all, cut into covered ways, in poor imitation of the Pergola, but mostly without the grace of the Pergola when laden with the nobler climbing plants. In our day the trained gardener may give us the fruits of the earth, and its many flowers, also the fresh food and salads of the spring, and what a waste of his precious time, clipping trees into hideous forms—in some cases months of time given to the ignoble work. And the effect of these ugly trees when seen in the approach to a house, hiding the beauty of any native trees that happen to be near. As to the Yew tree, the best way with it is in the copse or wood, there to take its beautiful form. They are usually able to do so, but even when in the wood take care to fence them from straying cow or horse. When large enough, all the lower branches should be cut off to 12 feet or more, to show the colour of the stem. Old Yews may be safely left alone, but never with any drooping branches within reach of any straying animal.

Among the monstrosities through misuse of the Yew tree is the forming of the maze, with hundreds of young trees crowded together, in the end killing each other.

It is well to note that all clipped lines of Yew, and of the Cherry and Portugal Laurels are *dead* lines, and cannot carry any beauty of flower. On the other hand, the best dividing lines may be fountains of beauty, walls well planted, often gardens of delight in growing things that need more warmth than the open air

Dead Lines and Living.

may give; covered ways with Oak trellising overhead; sides carrying Clematis, Honeysuckle, Vine, and climbing Rose. And among our native evergreens the Holly and Box form better dividing lines and need not be clipped. The trouble with the Yew is, being a hungry forest tree and tall beyond garden stature, it comes under the shears.

The late Mark Fisher, best landscape painter of our day, was painting my garden, seated under the old Yews at the west end, and he said to me: "Why do you give me a hard line, ugly there, instead of a free and beautiful one?" The lesson was not lost on me. The black and hard line was of small Yews, found on the place when I came, and there being a difference of level between the little front garden and the west garden, I, being a little under the vogue of the day, gave way to a small line of clipped young Yews, so as soon as I heard the painter's view I carted them away to plant as a group in an old "shaw," where they throve apace in cold soil.

Effect on the Landscape and Landscape Art.

Clipped Yew hedges rob a garden, never shelter it. If shelter from north or east is needed, plant the natural tree at a safe distance from the house. No forest tree should ever be planted near a house.

Shelter.

The source of much of this deforming comes to us from the Dutch, who import their trees, issue circulars and little cuts to advertise them. And now an aid comes from *Country Life* of pages of some of the worst forms of this distortion of our forest evergreen tree. So, feeling these illustrations might mislead some country gentlemen to ask their gardeners to waste their time on such abortions, I wrote these pages to *Country Life* to neutralise the ill effect of this prostitution of gardeners' time. On the plea of no room, my paper was returned. So now for the book, "*Garden Craftmanship in Yew and Box:* By Nathaniel Lloyd, Officer of the most excellent Order of the British Empire."

Source.

It is the poorest book that so far has disgraced the garden. In looking at the distortions, the first feeling was of vexation, but it soon turned to pity that an artist in any shape should call his work, as shown in his book, art. The only things to compare with his pictures is the golliwogs that children are given at Christmas, and the witless distortion of the human face and frame which the editors of some daily journals offer their readers! Would some good lady take the author into the woods and the downs, where the Box tree in its natural form is, on Sussex or Surrey hills, far more beautiful than anything ever seen in a garden, and show what true form is?

The illustrations are all on the miscalled "art" paper of the day, not enduring paper, but on a clayed surface, not pleasant to the eyes in some lights, and books on it heavy as stone. Among the pictures is a topiary garden at Earlshall, a hideous distortion of the Yew tree—all over a lawn that might have been a living garden of varied life. It is not pleasant to see a maze at Hatfield, the maze once part of the old tea-garden distraction—the meanest use we may make of our native Cedar. There are examples of the Box, fencing all the beds in a parterre in the same place, a misuse of our native Box. A boy in a garden might tell him that little else would grow in the beds.

Stone path over streamlet, right-of-way above.

CHAPTER IV.

A FLOWER GARDEN OF HARDY PLANTS AS FINISHED DECEMBER 1922.

THE object was to get rid of the cost, labour and bad effect of the system of bedding, carpet gardening, etc., in vogue for several generations, because it—

1. Excludes the presence of the most admired plants—Rose, Lily, Clematis.
2. Encourages growth of tender plants of the tropical weeds which must not be planted until early summer.
3. Leaves the garden desolate and ugly in winter.
4. Drives the flower-garden work into a very short period at a season when other work presses, and prevents good work being done at all seasons.

The Grafted Rose

A flower garden without Roses seemed to me something like a body without a heart. One of my first tasks was to get the Rose back to the flower garden. For several generations past the rule in these islands was to put the Rose garden away from the flower garden and house. How this came about it is not easy to say; it was in part owing to the short bloom-time of the old summer Rose. In any case, and even to the present day, landscape gardeners have practised this exclusion.

I began with all the best kinds of Rose—several thousand plants in all, and planted for the most part in bold groups, so as to test the value and endurance of each. Broadly, the result of that trial was that quite one-half of the plants died back on the Brier upon which they were invariably grafted. It being impossible to buy own-root plants in our country, the best one can do is to put up with plants as they come in, and scrape the stems above and around the graft, so as to encourage the plant to emit its own roots. The best Roses I have had—such as Marie van Houtte—were so treated. We strike the Roses on their own roots every September, and usually with good results, putting them in the open in ordinary soil, and as far

as we could, on the highest ground. The only excuse for grafting on the Dog Brier is that it is easy to handle the stock; the plant on its natural root is more fragile than on the Dog Brier. That being so, it is a wise plan to put the cuttings where we want the plant to grow. For example, if we want the plant of a favourite Rose, such as Mme Léon Paine or Bouquet d'Or, we put the cuttings in at the foot of a wall on the north, or other side, and it will grow and keep in perfect health for a life-time.

Grafting the Tea Rose is a purblind and fatal practice if our aim is the endurance of the plants. We have here the hardiest China Rose known to Europe—Fellenberg. It has bloomed over thirty years in the same place in perfect health in cool soil. If it had been a grafted plant the Roses must have died four times over, and we should have had infinite trouble with the suckers in the meantime.

There is variety in the way Roses behave when grafted on the Brier. Of two such Roses planted in the same bed, one will perish in a few years' time, and another will linger on apparently happy for several more years.

The beds were dug in a cool shaly soil to a depth of 3 feet. They were not manured. With 3 feet of good soil below, the Roses were safe as regards food. Instead of mulching we covered the ground beneath the plants with rock and other small plants, feeling that to cover the surface of the beds was not against the Rose—and so it proved. These are some of the plants used for the surface :—

Evening Primrose	Silvery Rockfoils	Our native Geranium	Dwarf Toadflax (L. palida)
Mignonette	Anagallis—blue	Sand Pinks (Tunica)	Gypsophila—Silvery
Pansies—tufted	Hairbells—dwarf	Dwarf Thyme (Micans)	The Blue Bindweed
Silvery Speedwell	Rock Scabious	The Greek Viola (Gracilis)	The Shamrock Pea
Baby Blue Eyes	Phacelia		

Being of a fragile nature the surfacing flowers are in need of frequent attention; they have to be transplanted and the surface refreshed while the Roses and Clematis and other permanents are never disturbed for years. The Roses are not packed close together, but to allow of better growth, set a yard apart.

Pruning Roses.

The laws of the Medes and Persians were not so strict as those that are laid down in the books as to pruning. So feeling that I could not set myself against these rules without some proof of the futility of the practice, I let my Roses be dashed about in the storm and frost—all the winter until April. When the plants could gain nothing but injury in this way I gave it up. Now all my Roses are put to bed before Christmas to do their true work of making roots. In this

way the plants escape all the effects of inclement weather, winter and early spring. The idea was that if you pruned before the spring the bushes started too early. This, after many years' trial, we have found not to be the case.

Manuring Roses.

As regards manure, which for generations now has been spread over the surface of every Rose garden in Britain, it occurred to me that the excreta of animals of various kinds spread under the windows of a house was not a good way. I felt that the depth and texture of the soil was of more importance than any benefit to be got by the addition of animal and other manures.

Apart from the scarcity of stable manure, there is also the great danger of one of the most dreaded diseases (Tetanus) arising. It is known to arise frequently in heavily manured earth.

In deep and open soil of almost any formation, certainly not excluding chalk or sand, if made deep enough, Roses of the Tea and China sorts thrive on their own roots from cuttings.

Clematis.

These splendid climbing plants—the larger ones which come to us from China and Japan—have been shut out of the gardens of Europe and, owing to the purblind practice of grafting them in nurseries on a native of our own hills, a plant upon which they never thrive. After many years of struggle with these we have at last succeeded with layers. Then all sign of disease was seen no more. And so we get the most graceful climber of the northern world in perfect health. We layer the plants in March and have good strong plants in September. We grow them on Oak trellis. Also, we find a good way is to let them climb up shrubs and low trees like Magnolia, in which way, and without any pruning or other care, they thrive.

Plants to leave out.

To get the full beauty of the flower garden in our northern summer it is essential that we should reject certain plants, showy but poor in colour value and all-devouring as to soil. Of such are the North American hardy sunflowers —all well in their right place, which is the copse or the wild garden; Asters best apart; Cannas that seldom attain their true beauty in our country; standard Roses always ungraceful and, in our country, killed in hard winters. Of late years, tiring of plants like Heliotrope and other tender plants, and feeling sure that a garden ought to be in full beauty long before June, I resolved to give them up. It is a gain to exclude any flower which for any reason one does not enjoy in close view of the house. My garden is for summer flowers only, and the spring flowers are given to the fields around. The only spring flowers in the flower

garden are the Crocus and Snow Glory, and these are planted 8 in., so that they may be followed by annual or other plants that flower in summer.

As there are thousands of spring flowers in the meadows and woods near, we reserve the beds for the summer flowers—Lily, Clematis, Rose, Pansy, Evening Primrose, Mignonette and hardy Ferns.

HARDY FLOWERS ONLY AT GRAVETYE, DECEMBER 1922.

No. 1. Border against house—left of porch—A large colony of Scabiosa Caucasica, purple and white forms, edging of Linaria pallida. On wall — Clematis Rose Lamarque and Paul's Scarlet, Vitis Wilsoni and also Rose, Climbing.

No. 2. Bed to right of porch—Rose Marie van Houtte both in bed and on wall, 10 years in same place; also on wall, Rose, Mermaid and Clematis. Undergrowth, Missouri Evening Primrose, hardy here. Edging, Blue Windflower.

No. 3. Below and in front of Pergola and with 4 feet retaining wall of sandstone blocks in rear, the latter filled with Californian Fuchsia (Zauschneria), Shamrock Pea, Blue Bindweed, Alpine Phlox and Linarias. The bed contains Old Pink China Rose across one end carpeted with the Horned Violet (V. Cornuta) and at the opposite end is a group of Gen. MacArthur Roses, and in the centre of the bed, Blue Sweet Peas. Edging, Sedum Ewersii and planted deeply beneath Crocus Sir Walter Scott. The Water Lily Tank separates this and No. 4 bed, and is surrounded by water-loving Iris.

No. 4. Contains groups of Rose, Frances Gaunt and Joseph Hill, carpeted with Tufted Pansies, clumps of Red and Pink Sweet Peas, there being a large mass of Lobelia Fulgens at one end. Edging of purple Crocus beneath Campanula Muralis.

No. 5. is a long border with Hugh Dickson Roses at one end, and a mass of the Feather Fern (Struthiopteris) and Henry's Lily at the other. The centre containing a variety of large flowered Delphiniums, edging consists of a broad belt of The Siberian Squill planted beneath Gypsophila.

No. 6. Zepherin Drouhin Roses, Lilium Regale and Narcissus, with a carpet of Hungarian Hepaticas (H. Angulosa) and mixed Rock plants.

No. 7. Collection of large flowered Snowdrops, Crocus, Iris and Pasque Flowers. These are succeeded by Nemophila Insignis and Rhodanthe.

No. 8. Mixed bed of bronze-leaved Roses on own roots and Gladiolus Primulinus. Edging, Crocus beneath encrusted Rock Foils.

No. 9. has Trellis background with large flowered Clematis, Romneya Trichocalyx, carpeted with Aquilegia Glandulosa.

No. 10. Rose Renee Wilmart Urban; underneath, encrusted Rock Foils. Edging, Gypsophila Dubia.

No. 11. Convolvulus Tenuissimus. Border, Carnations. Edging, Alpine Scabious.

No. 12. Incarvilleas in var. Carnations and Violet Cress (Ionopsidium). Edging Lady Knox Pansies. Trellis in rear covered with Roses and Clematis.

No. 13. Rose Theresa, carpeted with Collinsia Grandiflora.

No. 14. Mde. Hector Leuillot and Nita Weldon Roses. Edging, Geranium Lancastriense.

No. 15. Rose Mde. Ravary and Pansy True Blue.

No. 16. Roydel Velours Clematis on rough Yew support, with undergrowth of encrusted Rock Foils and Greek Violet (V. Gracilis).

No. 17. Background of Roses and Clematis on Oak Trellis. In bed, Lady Hillingdon Roses, with undergrowth of encrusted Rock Foils and Horned Pansies (Viola Cornuta).

No. 18. La Tosca and Belladora Roses, edged with White Swan Pansies. Beneath the Roses, Mauve Queen and Lady Knox Pansies.

No. 19. Rose Pharisaer and Anna Olivier with undergrowth of young plants of the Prairie Primrose (Œnothera). Edging Campanula Muralis.

No. 20. Clematis on rough Yew stakes with Rose C. Louis Breslau, J. C. N. Forestier. Undergrowth of Pansy Mosely Perfection. Edging Blue Bindwood (C. Mauritanicus).

No. 21. Rose, Souv. de Stella Gray, Covent Garden, K. of K. Undergrowth of Blue Flax. Edging, Geranium Lancastriense.

No. 22. Delphinium Bella Donna with a background of Clematis and Roses. Edging, Gypsophila Muralis.

No. 23. China Roses in variety. Edging, a broad belt of Purple Crocus.

No. 24. Collection of large flowered Clematis on rough Yew stakes and a group of Hugh Dickson Roses at one end with an undergrowth of Hardy Ferns, mostly evergreen, and the Great Chilian Evening Primrose (Œnothera Acaulis). Edging consists of a broad band of Snow Glories (Chionodoxa) which are followed in Summer by some light Annual, such as Swan River Daisy.

No. 25. Rose Mde. Herriot. Undergrowth of Councillor Waters, Pansy.

No. 26. Rose Mrs David M'Kee and Louis Leroy. Scarlet Turk's Cap Lily and the Narbon Flax as an undergrowth to the whole.

No. 27. Rose Zepherin Drouhin planted a yard apart, with White Phlox. Tapis Blanc between. Edging, the pale blue Trebizond Muscari.

No. 28. Rose Mde. Lombard. Undergrowth Phacelia Campanularia.

No. 29. Rose Irish Elegance, carpeted with Shamrock Pea (Parochetus). Edging consists of Corydalis Cheilanthifolia.

No. 30. Bright coloured Phlox in var. Edging, Thymus Micans, with Crocus beneath.

No. 31. Rose, Mde. Léon Pain. Undergrowth of Inchmery Pinks. Edging of Gypsophila over Margot Crocus.

No. 32. Golden Tea Roses in variety, with undergrowth of Silver-leaved Speedwell (Veronica Incana), and Horned Violet

No. 33. Collection of Tea Roses including Joseph Hill, Le Progrès, also group of Irish Fireflame, with undergrowth of Chinese Meadow Rue (Thalictrum Dipterocarpum). Edging, Gypsophilas.

No. 34. Clematis and Monkshood, with undergrowth of Pentstemon Heterophyllus. Edging of Coronation Pinks.

No. 35. Rose, Mdlle. de Kejegu, carpeted with Scabiosa Graminifolia. Edging, Campanula Muralis.

No. 36. Rose, Christine. Undergrowth, True Blue Pansy. Edging, Tunica Saxifraga.

No. 37. Rose, Mrs Aaron Ward, with an edging of Pinks.

No. 38. Clematis Nellie Moser on rough stake, undergrowth consisting of Linum Lewisii and Nemophila Insignis. Edging, Mosely Perfection Pansy.

No. 39. Convolvulus Althæiodes, Chinese Meadow Rue (T. Dipterocarpum), with edging of Helichrysum Bellidioides.

No. 40. Sun Roses mixed; Grey-leaved Senecio. Rose K. of K., Lilium Szovitzianum and Perowskia Atriplicifolia.

No. 41 On rough Yew stakes, Rose Billiard et Barre, and in bed a mass of Marie van Houtte and Mde. Abel Chatenay, planted between the roses, Delphinium Bella Donna. Edging, G. Wermig Violet.

No. 42. Collection of Lavender interspersed with a variety of Sword Lilies (Gladiolus). Edging of White Flowered Thrift.

No. 43. Large flowered Clematis on rough supports. Undergrowth of Œnothera speciosa and Delphiniums.

No. 44. Rose, Grand Duke de Luxembourg with an undergrowth of Pinks in variety.

No. 45. Large flowering Clematis with undergrowth of Columbine species.

No. 46. A collection of large flowering Clematis on rough Yew supports, undergrowth of hardy Agapanthus (A. Mooreanus Minor) and Tulips. Edging of white flowered Thrift.

South Garden.

No. 1. Roses Mde. Léon Pain, La Tosca and Golden Emblem, also Chelone Barbata, the whole having a carpet of Tropæolum Polyphyllum. Edging, Campanula Muralis and Gypsophila Muralis used alternately. The background to this bed consists of Lonicera Sempervirens, Clematis Coccinia and Trachelospermum Jasminoides.

No. 2. Contains Souvd. d. Gustave Pratt Roses with an undergrowth of Carnations. Edging of mixed Crocus beneath Rock Scabious.

No. 3. Princess d. Sagan Rose, undergrowth Swan River Daisy (Brachycombe). Edging, Crocus.

No. 4. Rose G. Nabonnaud, Gladiolus primulinus. Edging of Blue Bindwood (Convolvulus Mauritanicus).

No. 5. Roses. Lady Waterlow on rough stake, and President Carnot with an undergrowth of mixed varieties of Pinks. The background to this bed consists of Clematis Lanuginosa, C. Comtesse d. Bouchard, Japanese Wistaria and Horse Brier (Smilax Rotundifolia).

No. 6. Rose Ophelia. Undergrowth of Platycodon grandiflorum var. Mariesii.

No. 7. Red Letter Day Roses, Perowskia Atriplicifolia, with an edging of encrusted Saxifrage.

No. 8. Rose Prince de Bulgarie, Lilium Speciosum Magnificum, carpeted with tufted Pansies, Councillor Waters and White Swan.

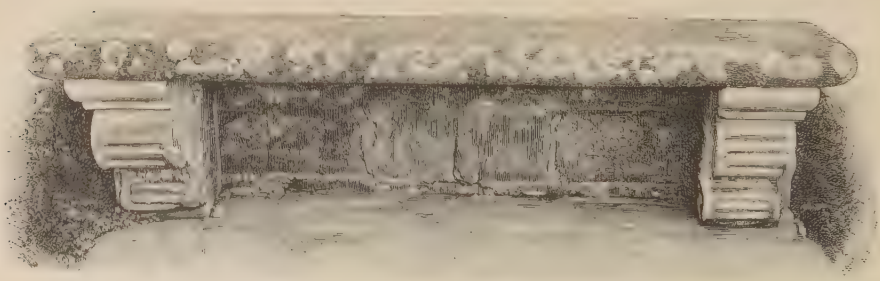
No. 9. Madonna Lilies in groups. Late Red Dutch Honeysuckles; ground work of Pentstemon Heterophyllus. Edging, purple Crocus, beneath white flowered Thrift.

No. 10. Border right of porch. Small collection of Iris, Bella Donna Lilies, sweet Verbena and China Roses. Undergrowth Campanula Muralis. Edging Carpathian Snowflakes and Rock Foils. On wall in rear of border is Abutilon Vitifolium, Clematis, Rose and Jalap plant.

No. 11. Long narrow border, left of porch, contains white Caucasian Scabious at one end edged with pink, Princess Mary, also Campanula Muralis, Sternbergia Lutea, Kaffir Lily, Amicia, Nerine Bowdeni, Bella Donna Lilies, Iris Tingitana, Iris Stylosa and Sweet Violets. Trained to wall behind is the Japanese Wistaria, Rosa Sinica Anemone, Rose Lemarque and L. Ideal, Magnolia Grandiflora, Solanum Jasminoides, Phygelius Capensis, Pomegranate and Lonicera Sempervirens.

No. 12. Rosemary in variety carpeted with Lady Knox Violas.

No. 13. Contains Tritoma Excelsa and Madonna Lily with an edging of Blue Bindwood.



CHAPTER V.

ART IN RELATION TO FLOWER-GARDENING AND GARDEN DESIGN.

THERE is no reason why we should not have true art in the garden, but much why we should have it, and no reason why a garden should be ugly, bare, or conventional. The word "art" being used in its highest sense here, it may perhaps be well to justify its use, and as good a definition of the word as any perhaps is "power to see and give form to beautiful things," which we see shown in some of its finest forms in Greek sculpture and in the works of the great masters of painting.

True and false "art."

But art is of many kinds, and owing to the loose, "critical" talk of the day, it is not easy to see that true art is based on clear-eyed study of and love for Nature, rather than invention and the bringing of the "personality" of the artist into the work, of which we hear so much. The work of the artist is always marked by its fidelity to Nature, and proof of this may be seen in the greatest art galleries now open to all, so that there is little to hide evidence as to what is said here about art in its highest expression. But as a number of people write much about art in the magazines and papers, while blind as bats to its simple law, there is infinite confusion in many minds about it, and we may read essay after essay about art without being brought a bit nearer to the simple truth, but on the other hand get the false idea that it is not by observing, but by inventing and supplementing, that good work is done. The strong man must be there, but his work is to see the whole beauty of the subject, and to help us to see it, not to distort it in any way for the sake of making it "original." This is often a way to popularity, but in the end it means bad work. It may be the fashion for a season, owing to some one quality: but it is soon found out, and we have to return to the great masters of all ages, who are always distinguished for truth to Nature, and who show their strength by getting nearer to her.

The actual beauty of a thing in all its fulness and subtlety is almost the whole of the question, but the critics of the day will

not take the trouble to see this, and write essays on art in which many long words occur, but in which we do not once meet with the word *truth*. "Realism" and "idealism" are words freely used and bad pictures are shown us as examples of 'realism," which leave out all the refinement, subtlety, truth of tone, and perhaps even the very light and shade in which all the real things we see are set.

"Realism" and "Idealism."

There are men so blind to the beauty of the things set before their eyes in sky, sea, or earth, that they would seek to idealise the eyes of a beautiful child or the clouds of heaven; while all who see natural beauty in landscape know that no imagining can come near to the beauty of things seen, art being often powerless to seize their full beauty, and the artist has often to let the brush fall in despair. There are more pictures round the year in many a parish in England than all the landscape painters of Europe could paint in a century. Only a little, indeed, of the beauty that concerns us most—that of the landscape—can be seized for us except by the very greatest masters. Of things visible—flower, tree, landscape, sky, or sea—to see the full and every varied beauty is to be saved for ever from any will-o'-the-wisp of the imaginary.

But many people do not judge pictures by Nature, but by pictures, and therefore they miss her subtleties and delicate realities on which all true work depends. Some sneer at those who "copy Nature," but the answer to such critics is for ever there in the work of the great men, be they Greeks, Dutchmen, Italians, French, or English.

It is part of the work of the artist to select beautiful or memorable things, not the first that come in his way. The Venus of Milo is from a noble type of woman—not a mean Greek. The horses of the Parthenon show the best of Eastern breed, full of life and beauty. Great landscape painters like Crome, Corot, and Turner seek not things only because they are natural, but also beautiful; selecting views and waiting for the light that suits the chosen subject best, they give us pictures, working always from faithful study of Nature and from stores of knowledge gathered from her, and that, too, is the only true path for the gardener.

Why say so much here about art? Because when we see the meaning of true "art" we cannot endure what is ugly and false in art, and we cannot have the foregrounds of beautiful English scenery daubed with flower gardens like coloured advertisements. Many see the right way from their own sense being true, but others may wish for proof of what is urged here as to the true source of lasting

Broadway, Worcestershire. A. Parsons, R.A.

work in art in the work of the great artists of all time. And we may be as true artists in the garden and home landscape as anywhere else.

There is no good picture which does not image for us the beauty of natural things, and why not begin with these and be artists in their growth and grouping?—for one reason among others that we are privileged to have the living things about us, and not merely representations of them.

Manor House, Corfe Castle, Dorset.

So far we have spoken of the work of the true artist, which is always marked by respect for Nature and by keen study of her.

The true artist.

But apart from this we have a great many men who do what is called "decorative" work, useful, but still not art in the sense of delight in, and study of, things as they are—the whole class of decorators, who make our carpets, tiles, curtains, and who adapt conventional or geometric forms mostly to flat surfaces. Skill in this way may be considerable without any attention whatever being paid to the greater art that is concerned with life in all its fulness.

This it is well to see clearly; as for the flower gardener it matters much on which side he stands. Unhappily, our gardeners for ages have suffered at the hands of the decorative artist, when applying his "designs" to the garden, and designs which may be quite right on a surface like a carpet or panel have been applied a thousand times to the surface of the reluctant earth. It is this adapting of absurd "knots" and patterns from old books to any surface where a flower garden has to be made that leads to bad and frivolous design—wrong in plan and hopeless for the life of plants. It is so easy for any one asked for a plan to furnish

Cawdor.

one of this sort without the slightest knowledge of the life of a garden.

For ages the flower garden has been marred by absurdities of this kind of work as regards plan, though the flowers were in simple and natural ways. But in our own time the same "decorative" idea has come to be carried out in the planting of the flowers under the name of "bedding out," "carpet bedding," or "mosaic culture." In this the beautiful forms of flowers are degraded to crude colour without reference to the natural forms or beauty of the plants, clipping being freely done to get the carpets level. When these tracery gardens were made, often by people without any knowledge of the plants of a garden, they were found to be difficult to plant; hence attempts to do without the gardener altogether, and get colour by the use of broken brick, white sand, and painted stone. All such work is wrong and degrading to art, and in its extreme expressions is ridiculous.

Carpet bedding.

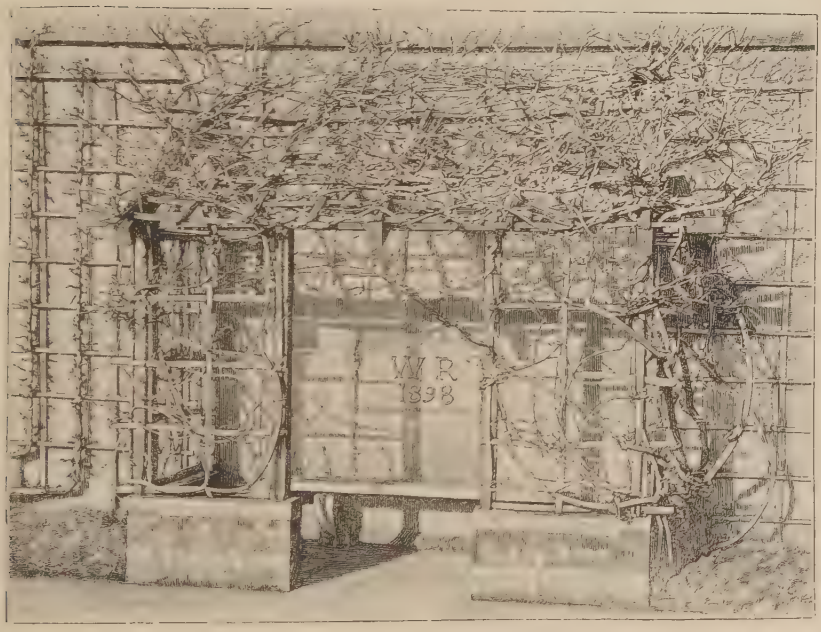
As I use the word "artistic" in a book on the flower garden, it may be well to say that as it is used it means right and true in relation to all the conditions of the case, and the necessary limitations of our art and all other human arts. A lovely Greek coin, a bit of canvas painted by Corot with the morning light on it, a block of stone hewn into the shape of the dying gladiator, the white mountain rocks built into a Parthenon—these are all examples of human art, every one of which can be only fairly judged in due regard to what is possible in the material of each. Often a garden may be wrong in various ways, as shown by the starving pines in front of many a house—ugly in form and not in harmony with our native or best garden vegetation; mountain trees set out on dry plains; so that the word inartistic may help us to describe many errors. And again, if we are happy enough to find a garden so true and right in its results as to form a picture that an artist would be charmed to study, we may call it an artistic garden, as a short way of saying that it is about as good as it may be, taking everything into account.

The word "artistic."

There are few pictures of gardens, because the garden beautiful is rare. Gardens around country houses, instead of forming, as they might, graceful foregrounds to the good landscape views, disfigure all, and drive the artist away in despair. Yet there may be real pictures in gardens; it is not a mere question of patterns of a very poor sort, but one of light and shade, beauty of form, and colour. In times when gardens were made

Landscape painting and gardens.

by men who did not know one tree from another, the matter was settled by the shears—it was a question of green walls only. Now we are beginning to see that there is a wholly different and higher order of beauty to be found in gardens, and we are at the beginning of a period when we may hope to get much more pleasure and instruction out of this art than ever before.



Wistaria Bower. Gravetye, Sussex. Winter effect.

CHAPTER VI.

GARDEN DESIGN AND RECENT WRITINGS UPON IT.

Of all the things made by man for his pleasure a flower garden has the least business to be ugly, barren, or stereotyped, because in it we may have the fairest of the earth's children in a living, ever-changeful state, and not, as in other arts, mere representations of them. And yet we find in nearly every country place, pattern plans, conventional design, and the garden robbed of all life and grace by setting out flowers in geometric ways. A recent writer on garden design tells us that the gardener's knowledge is of no account, and that gardens—

> should never have been allowed to fall into the hands of the gardener or out of those of the architect; that it is an architectural matter, and should have been schemed at the same time and by the same hand as the house itself.

Formal gardens made in our own day.

The chief error he makes is in saying that people, whom he calls "landscapists," destroyed all the formal gardens in England, and that they had their ruthless way until his coming. An extravagant statement, as must be clear to any one who takes the trouble to look into the thing itself, which many of these writers will not do or regard the elementary facts of what they write about. Many of the most formal gardens in England have been made within the past century, when this writer says all his ideal gardens were cleared away, *e.g.*, the Crystal Palace, the Royal Horticultural Society's at Kensington, and Witley Court, Castle Howard, Mentmore, Drayton, Crewe Hall. During the whole of that period there was hardly a country seat laid out that was not marred by the idea of a garden as a conventional and patterned thing. With Castle Howards, Trenthams, and Chatsworths staring at him, it is ludicrous to see a young architect weeping over their loss. Even if there is no money to waste in gigantic water-squirts, the idea of the terrace is still carried out often in level plains. There are hundreds of such gardens about the country, and the

ugliest gardens ever made in England have been made in Victorian days.

It cannot be too clearly remembered that geometrical gardens of a deplorable type are things of our own time, and it is only in our own time the common idea that there is only one way of making a garden was spread. Hence, in all the newer houses we see the stereotyped garden often made in spite of all the needs of the ground, whereas in really old times it was not so. Berkeley is not the same as Sutton, and Sutton is quite different from Haddon.

Moreover, on top of all this formality of design of our own day were grafted the most formal and inartistic ways of arranging flowers that ever came into the head of man, ways that were happily unknown to the Italians or the makers of the earliest terraced gardens. The true Italian gardens were often beautiful with trees in their natural forms, as in the Giusti gardens at Verona ; but "bedding out," or marshalling the flowers in geometrical patterns, is a thing of our own precious time, and "carpet" gardening is simply a further remove in ugliness. The painted gravel gardens of Nesfield and Barry and other broken-brick gardeners were also an attempt to get rid of the flowers and get rigid patterns instead. Part of the garden architect's scheme was to forbid the growth of plants on walls, as at Shrubland, where, for many years, there were strict orders that the walls were not to have a flower or a creeper of any kind upon them. As these pattern gardens were made by persons often ignorant of gardening, and if planted in any human way with flowers would all "go to pieces," hence the idea of setting them out as they appeared on the drawing-board, some of the beds not more than a foot in diameter, blue and yellow paints being used where the broken brick and stone did not give the desired colour!

Patterns of flowers and carpet-beds things of our own time.

Side by side with the adoption in most large and show places of the patterned garden, both in design and planting, disappeared almost everywhere the old English garden, that is, one with a variety of form of shrub and flower and even low trees ; so that now we only find this kind of garden here and there in Cornwall, Ireland, and Scotland, and on the outskirts of country towns. All true plant form was banished because it did not fit into the bad carpet pattern! I am only speaking of what every one must know who cares the least about the subject, and of what can be seen to-day in all the public gardens round London and Paris. But we shall never see beautiful flower gardens again until natural ways

Loss of old garden ways.

of grouping flowers and variety of true form come back to us in the flower garden.

After the central error above shown there comes a common one of these writers, of supposing that those who seek natural form and beauty in the garden and home landscape are opposed to the necessary level and even formal spaces about a house. I wrote the "Wild Garden" to save, not to destroy, the flower garden; to show that we could have all the joy of spring in orchard, meadow, or wood, lawn or grove, and so save *the true flower garden near the house* from being torn up twice a year to effect what is called spring and summer "bedding." The idea could be made clear to a child, and it is carried out in many places easy to see. Yet there is hardly a cobbler who rushes from his last to write a book on garden design who does not think that I want to bring the wilderness in at the windows, I who have given all my days to save the flower garden from the ridiculous. A young lady who has been reading one of these bad books, seeing the square beds in my little south garden, says: "Oh! why, *you* have a formal garden!" It is a small square embraced by walls, and I could not have used any other form to get the best use of the space. They are just the kind of beds made in like spaces by the gardeners of Nebuchadnezzar, judging by what evidence remains to us. And he no more than I mistook stones for bushes or bad carpets for flowers, but enjoyed vine and fig and flower as Heaven sent them.

The Wild Garden does not take the place of the Flower Garden.

The real flower garden near the house is for the ceaseless care and culture of many and diverse things often tender and in need of protection in varied soils, staking, cleaning, trials of novelties, study of colour effects, sowings and plantings at all seasons. The wild garden, on the other hand, is for things that take care of themselves in the soil of the place, things which will endure for generations if we suit the plants to the soil, like Narcissus on a rich orchard bottom, or blue Anemone in a grove on the limestone soil as in much of Ireland. This garden is a precious aid to the other, inasmuch as it allows of our letting the flower garden do its best work because relieved of the intolerable need of the bedding system in digging up the garden twice a year.

Very often now terms of gardening are misapplied, confusing the mind of the student, and the air is full of a new term, the "formal" garden. For ages gardens of simple form have been common without any one calling them "formal" until our own time of too many words confusing thoughts. Seeing an announcement that there was a paper in the *Studio* on the "Formal Garden in Scotland," I looked in it, seeking

Misuse of terms.

light, and found only plans of the usual approaches necessary for a country house, for kitchen, hall door, or carriage-way. And we gardeners of another sort do not get in like the bats through the roof, but have also ways usually level, to our doors, but we do not call them "formal gardens." There are gardens to which the term "formal" might with some reason be applied. Here are a few words about such by one Percy Bysshe Shelley, whose clear eyes saw beauty if there was any to be seen in earth or sky:

> We saw the palace and gardens of Versailles full of statues, vases, fountains, and colonnades. *In all that belongs essentially to a garden they are extraordinarily deficient.*

A few more by Victor Hugo:

> There fountains gush from the petrified gods, only to stagnate; trees are forced to submit to the grotesque caprices of the shears and line. Natural beauty is everywhere contradicted, inverted, upset, destroyed.

And Robert Southey tells us of one

> where the walks were sometimes of lighter or darker gravel, red or yellow sand, and, when such materials were at hand, pulverised coal and shells. The garden itself was a scroll-work cut very narrow, and the interstices filled with sand of different colours to imitate embroidery.

It is only where the plants of a garden are rigidly set out in geometrical design, as in carpet-gardening and bedding-out, that the term "formal" is rightly applied.

We live in a time when men write about garden design unmeaning words or absolute nonsense; these, as any one may see, are men who have had no actual contact with the work. They think garden design is a question that can be settled on a drawing-board, and have not the least idea that in any true sense the art is not possible without knowledge of many beautiful living things, and that the right planting of a country place is of far greater importance than the ground-plan about the house.

In many books on garden design the authors misuse words and confuse ideas. Many, not satisfied with the good word, "landscape gardener," used by Loudon, Repton, and many other men, call themselves "landscape architects"—a stupid term of French origin implying the union of two distinct studies, one dealing with varied life in a thousand different kinds and the natural beauty of the earth, and the other with stones and bricks and their putting together. The training for either of these arts is wide apart from the training demanded for the other, and the earnest practice of one leaves no time, even if there were the genius, for the other.

The term *landscape planting* is often scoffed at by these writers, yet it is a good one with a clear meaning, which is the grouping and growth of trees in natural forms as opposed to the universal aligning, clipping, and shearing of the Dutch; the natural incidence of light and shade and breadth as the true guide in all artistic planting. The term landscape gardening is a true and, in the fullest sense, a good English one, with a clear and even beautiful meaning, namely, the study of the forms of the earth, and frank acceptance of them as the best of all for purposes of beauty or use of planter or gardener.

Landscape gardening.

We accept the varied slopes of the river bank and the path of the river as not only better than those of a Dutch canal, but a hundred times better; and not only for their beauty, but for the story they tell of the earth herself in ages past. We gratefully take the lessons of Nature in her most beautiful aspects of vegetation as to breadth, airy spaces, massing and grouping of the woods that fringe the valleys or garland the mountain rocks as better beyond all that words can express than anything men can invent or ever have invented.

We love and prefer the divinely-settled form of the tree or shrub or flower beyond any possible expression of man's misguided efforts with shears, such as we see illustrated in old Dutch books where every living thing is clipped to conform to an idea of "design" that arose in the minds of men to whom all trees were green things to be cut into ugly walls. We repudiate as false and ridiculous the common idea of the pattern-monger's book, that these aspirations of ours are in any way "styles," the inventions of certain men, because we know that they are based on eternal truths of Nature, free as the clouds to any one who climbs the hills and has eyes to see.

The fact that ignorant men who have never had the chance of learning these lessons, make pudding-like clumps in a vain attempt to diversify the surface of the ground, and other foolish things, does not in the least turn us aside from following the true and only ways to get the best expression possible of beauty from any given morsel of the earth's surface we have to plant. We sympathise with the landscape-painter's work as reflecting for us, though often in a faint degree, the wondrously varied beauty of the earth, and in the case of the great master-painters full of truth and beauty. We hold that the only true test of our efforts in planting or gardening is the picture. Do we frighten the artist away, or do we bring him to see a garden so free from ugly patterns and ugly colours that, seen in a beautiful light, it would

The true test of a flower garden.

be worth painting? There is not, and there never can be, any other true test.

Even if our aim be right, the direction, as it is in other matters, may be vitiated by stupidity, as in gardens where false lines and curves abound, as in the Champs Elysée in Paris. It is quite right to see the faults of this and to laugh at them; but how about those who plant in true and artistic ways? In the case we mention there is ceaseless and inartistic and vain throwing up of the ground, and sharp and ugly slopes, which are often against the cultivation of the things planted.

The rejection of clipped forms and book patterns of trees set out like lamp-posts, costly walls where none are wanted, and of all the too facile labours of the drawing-board "artist" in gardens, first affected in England in what we call pleasure-ground and park, is set down by these writers on garden design as the wicked invention of certain men. No account has been taken of the eternally beautiful lessons of Nature or even the simple facts which should be known to all who write about such things. Thus in "The Art and Craft of Garden Making" we read:

> So far as the roads were concerned Brown built up a theory that, as Nature abhorred a straight line, it was necessary to make roads curl about. Serpentine lines are said to be the lines of Nature, and therefore beyond question the only proper lines.

But nothing is said of the fact that in making paths or roads in diversified country it is absolutely necessary to follow the line of easiest gradation, and this cannot always be a straight line, and is, indeed, often a beautiful bent line. In many cases we are not twenty paces from the level space around a house before we have to think of the lie of the ground in making walks, roads, or paths. We are soon face to face with the fact that the worst thing we can attempt is a straight line. If any one for any reason persists in the attempt the result is ugliness, and, in the case of drives, danger. Ages before Brown was born the roads of England often followed beautiful lines, and it would be just as true to attribute to "Brownites" the invention of the forms of trees, hills, or clouds themselves as to say that they invented the waved line for path or drive. The statement is of a piece with the other, that the natural and picturesque view of garden design and planting is the mischievous invention of certain men, and not the outcome of the most precious of all gifts, of Nature herself, and of the actual facts of tree and landscape beauty. All who have seen the pictures by the roadsides of many parts of Britain and the paths over the hills, and, still more so, those who have to form roads or walks in diversified country, will best know how absurd such statements are.

Facts of natural beauty the source of good design.

The very statement that there is but one way of making a garden, is its own refutation; as with this formula before us what becomes of the wondrous variety of the earth and its forms, and of the advantages and needs of change that soil, site, climate, air, and view give us—plains, river valleys, old beach levels, mountains and gentle hills, chalk downs and rich loamy fields, forest and open country?

Variety the true source of beauty in gardens.

What is the use of Essex going into Dorset merely to see the same thing done in the home landscape or the garden? But if Essex were to study his own ground and do the best he could from his own knowledge of the spot, his neighbour might be glad to see his garden. We have too much of the stereotyped style already; in nine cases out of ten we can tell beforehand what we are going to see in a country place in the way of conventional garden design and planting; and clearly that is not art in any right sense of the word and never can be.

As we go about our country the most depressing sign for all garden lovers (and this often in districts of great natural beauty) is the stereotyped gardens, probably made by the "young man in the drawing-office." There is a harmful belief in the virtue of paper plans which is misleading and only suits the wants of professionalism in its worst form, and prevents the study of the ground itself, which is the only right way to get the best result.

To the good gardener all kinds of design are good if not against the site, soil, climate, or labours of his garden—a very important point the last. We frequently see beds a foot in diameter and many other frivolities of paper plans which prevent the labours of a garden being done with economy or simplicity. In many places where these tracery gardens are carried out, they are soon seen to be so absurd that the owners quietly turf the spot over, and hence we see only grass where there ought to be a real flower garden. The good gardener is happy adorning old walls or necessary terraces, as at Haddon, as he knows walls are good friends in every way both as backgrounds and shelters; but he is as happy in a lawn garden, in a rich valley soil, or on the banks of a river, or on those gentle hill-slopes that ask for no terraces, or in the hundreds of gardens in and near towns and cities of Europe that are enclosed by walls and where there is no room for landscape effect (many of them distinctly beautiful too, as in Mr Fox's garden at Falmouth); as much at home in a border-castle garden as in the lovely Penjerrick, like a glimpse of a valley in some Pacific isle, or Mount Usher, cooled by mountain streams.

Any way good that best suits the site.

Arundel, Sussex. Ground requiring terracing.

The architect writer turns on the waterworks as his chief solace:

But of all the fascinating sources of effect in garden-making the most fascinating are waterworks. An expensive luxury as a rule, but they well repay the expense.

Well, there is some evidence of the sort of design these afford; some instances terrible in their ugliness (one hideous at Bayreuth). And with all the care that a rich State may take of them, can we say that the effect at Versailles is artistic or delightful? Water tumbling into the blazing streets of Roman cities and nobly designed fountains supplying the people with water was right; but in our cool land artificial fountains are very different in effect, and often hideous extravagance. Of their ugliness there is evidence in nearly every city in Europe, including our own Trafalgar Square, and that fine work at the head of the Serpentine. We have also our Crystal Palace and Chatsworth, designed as they might be by a theatrical super who had suddenly inherited a millionaire's fortune. So far as our island countries go, nothing asks for more care and modest art than the introduction into the garden or home landscape of artificial water. Happily our countries are rich in the charms of natural water—too often neglected in its planting.

Waterworks garden design.

Among the great peoples of old, so far as known to our human story, was one supreme in art, from buildings chiselled as delicately as the petals of the wild rose, to the smallest coins in their pockets, and bits of baked clay in their graves, and this is clear to all men from what remains of their work gathered from the mud and dust of ages. And from that time of deathless beauty in art comes the voice of one who saw this lovely art in its fulness: *The greatest and fairest things are done by Nature and the lesser by Art* (Plato). There is not a garden in Britain, free from convention and carpet gardening, from the cottage gardens nestling beneath the Surrey hills to those fair and varied gardens in Cornwall, which does not tell the same story to all who have eyes to see and hearts to care for the thing itself, and not merely for incoherent talk about it. The only sad thing is that such words must be said again and again; but we live in a time of much printed fog about artistic things—the "New Art" and the "New Æsthetic"; "Evolution," which explains how everything comes from nothing and goes back again to worse than nothing; the sliding bog of "realism and idealism" in which the phrase-monger may dance around and say the same false thing ten times over; and, last and least of all among these imbecilities, the

Hollow talk of the day about art.

teaching that to form a garden one had better know nothing of the things that should grow in it, from the Cedar of Lebanon to the violets of the mountain rocks.

This teaching is as false as any spoken or written thing can be; there is an absolute difference between the living gardens and conventional designs dealing with dead matter, be it brick or stone, glass, iron, or carpets. There is a difference in kind, and while any pupil in an architect's office will get out a drawing for the kind of garden we may see everywhere, the garden beautiful does not arise in that way. I would much rather trust the first simple person, who knew his ground and loved his work, to get a beautiful result than any of those artificers. We have proof in the gardens of English people abroad that were freed from the too facile plans of the "office"; far more beautiful gardens arise, as in the Isle of Madeira, where every garden differs from its neighbour, and all are beautiful. So it is in a less degree in our own island, where the more we get out of the range of any one conventional idea for the garden the more beauty and happy incident we see.

CHAPTER VII.

DESIGN AND POSITION—AGAINST STYLES, USELESS STONEWORK, AND STEREOTYPED PLANS—TIME'S EFFECT ON GARDEN DESIGN—ARCHITECTURE AND FLOWER GARDENS—DESIGN NOT FORMAL ONLY—USE IN THE GARDEN OF BUILDERS' AND OTHER DEGRADED FORMS OF THE PLASTIC ART.

THE first thing is to get a clear idea of the hollowness of much of the talk about "styles." In books about laying out gardens there are many dissertations on styles, the authors going even to China and to Mexico for illustrations. What is the result to anybody who looks from words to things? That there are two styles: the one strait-laced, mechanical, with much wall and stone, with fountains and sculpture; the other the natural, which, once free of the house, accepts the ground lines of the earth herself as the best, and gets plant beauty from the flowers and trees arranged in picturesque ways.

There are positions where stonework is necessary; but the beautiful terrace gardens are those that are built where the nature of the ground required them. There is nothing more melancholy than the walls, fountain basins, clipped trees, and long canals of places like the Crystal Palace, not only because they fail to satisfy the desire for beauty, but because they tell of wasted effort, and riches worse than lost. There are, from Versailles to Caserta, a great many ugly gardens in Europe, but at Sydenham we have the greatest modern example of the waste of enormous means in making hideous a fine piece of ground. As Versailles has numerous tall fountains, the best way of glorifying ourselves was to make some taller ones at Sydenham! Instead of confining the terrace gardening to the upper terrace, by far the greater portion of the ground was devoted to a stony extravagance of design, and nearly in the centre were placed the vast and ugly fountain basins. The contrivances to enable the water to go downstairs, the temples, statues and dead walls, were praised by the papers as the marvellous work of a genius.

Many whose lawns were, or might readily have been made, the most beautiful of gardens, have spoiled them for sham terraced

Haddon, Derbyshire.

gardens, and there is a modern castle in Scotland where the embankments are piled one above another, till the whole looks as if Uncle Toby with an army of Corporal Trims had been carrying out his grandest scheme in fortification. The rude stone wall of the hill husbandman, supporting a narrow slip of soil for olive-trees or vines, became in the garden of the wealthy Roman a well-built one; but it must be remembered that, even where the wall is necessary, the beauty of the true Italian garden depends on the life of trees and flowers more than on the plan of the garden.

Terraced gardens.

Terraced gardens allowing of much building (apart from the house) have been in favour with architects who have designed gardens. The designer, too often led by custom, falls in with the notion that every house, no matter what its position, should be fortified by terraces, and he busies himself in forming them even on level ground, and large sums are spent on fountains, vases, statues, balustrades, useless walls, and stucco work out of place.

Elaborate terraced gardens in the wrong place often prevent the formation of beautiful lawns, though a good lawn is the happiest thing in a garden. For many years past there has been so much cutting up, geometry and stonework, that it is rare to find a good lawn, and many a site so cut up would be vastly improved if changed into a large, nobly fringed lawn.

A style of garden "design" that for a long time has had an injurious effect on many places is the "railway embankment" phase; there we see a series of sharply graded grass slopes like well-smoothed railway embankments—often several sharp banks, one below the other, without a protecting wall at the top, and obtruding their sharp green angles on various points of view, and this perhaps in the face of a beautiful landscape.

A beautiful house in a fair landscape is the most delightful scene of the cultivated earth, all the more so if there be an artistic garden. The union between the house beautiful and the ground near it is worthy of more thought, and the best way of effecting that union artistically should interest men more and more as our cities grow larger and the landscape shrinks back from them.

After we have settled the essential approaches and levels around a house, the natural form or lines of the earth itself are in nearly all cases the best to follow, and it is often well to face any labour to get the ground back into its natural grade where it is disfigured by ugly or needless banks, lines, or angles. In the true Italian garden *on the hills* we have to alter the natural line of the earth, or "terrace it," because we cannot otherwise cultivate the ground or stand at ease upon it, and in such ground the formal is right, as the lawn is in a

Longleat, Wiltshire. English country house with picturesque planting.

garden in the Thames valley. But the lawn is the heart of the true English garden, and as essential to it as the terrace to the gardens on the steep hills.

We may get every charm of a garden and every use of a country place without sacrificing the picturesque or the beautiful. There is no reason, either in the working or design of gardens, why there should be a false line in them; every charm of the flower garden may be secured by avoiding the knots and scrolls which subordinate all the plants and flowers of a garden, all its joy and life, to a conventional design. The true way is the opposite. With only the simplest plans to ensure good working, we should see the flowers and feel the beauty of plant forms, and secure every scrap of turf wanted for play or lawn, and for every enjoyment of a garden.

Time and gardens.

Time's effect on gardens is one of the main considerations. Fortress-town and castle moat are now without further use, where in old days gardens were set within the walls. To keep all that remains of such gardens should be our first care—never to imitate them now. Many are far more beautiful than the modern gardens, which have been kept bare of plants or flower life. At one time it was rash to make a garden away from protecting walls; but when the danger from civil war was past, then arose the often beautiful Elizabethan house, free from all moat or trace of war.

In those days the extension of the decorative work of the house into the garden had some novelty to carry it off, while the kinds of evergreens were very much fewer than now. Hence if the old gardeners wanted an evergreen hedge or bush of a certain height they clipped a Yew tree to the form and size they wanted. To-day the ever-growing city, pushing its hard face over our once beautiful land, should make us wish more and more to keep such beauty of the earth as may be still possible to us.

CHAPTER VIII.

BORDERS OF HARDY FLOWERS.

WE now come to the flowers that are worthy of a place in gardens, and to consider ways of arranging them. Their number and variety being almost without limit, the question is, how the garden lover is to enjoy as many of these treasures as his conditions allow of. As during all time a simple border has been the first expression of flower gardening, and as there is no arrangement of flowers more graceful, varied, or capable of giving more delight, and none so easily adapted to almost every kind of garden, some ideas of the various kinds of borders of hardy flowers mainly deserve our first consideration.

The difference in cost of growing hardy flowers or tender should be thought of. The sacrifice of flower gardens to plants that perish every year has often left them poor of all the nobler plants. We must take into account the hothouses, the propagation of plants by thousands at certain seasons, the planting out at the busiest and fairest time of the year—in June, the digging up and storing in autumn, the care in the winter.

Cost and endurance.

There are a number of plants which, given thorough preparation at first, it would be wise to leave alone for some years at a time—as, for example, groups or beds of the various Tritomas, Irises, Lilies, either grouped with others or in families. When all these exhaust the ground or become too crowded, by all means move them and replant, but this is a very different thing from moving all the plants in the flower garden twice a year.

It would be better every way if, so far as the flower garden is concerned, gardeners were to see what could be done unaided by the hothouse; but meanwhile the wise man will reduce the expense of glass, labour, fire, repairs, paint, pipes, and boilers.

The true way to make gardens yield a return of beauty for the labour and skill given them is the permanent one. Choose some beautiful class of plants and select a place that will suit them, even as to their effect in the garden landscape. Let the beds be planted as permanently and

The true way.

as well as possible, so that there will remain little to do for years.

One of the best reforms will be to avoid the conventional pattern plans, and adopt simple beds and borders, in positions suited to the plants they are to grow. These can best be filled permanently because the planter is free to deal with them in a bolder way than if he has to consider their relation to a number of small beds. In this way, also, the delight of flowers is much more keenly felt as one sees them relieved, sees them at different times, and to more advantage than the flowers stereotyped under the window. Roses grouped well together, and not trained as standards, would lend themselves admirably to culture with other things, for example, Tea Roses with Carnations. Then there are many groups made by the aid of the finer perennials themselves, by choosing things that would go well together, such as the Delphiniums and Phloxes. Other plants, such as Yuccas, of which there are now various beautiful kinds, are often best by themselves; and noble groups they form, whether in flower or not. The kinds of Yucca that flower very freely, such as Y. recurva and Y. flaccida, lend themselves to grouping with Flame Flowers (Tritoma) and the bolder autumn plants.

Pattern plans.

There is no beauty among tender plants to be compared with that of Irises, Lilies, Delphiniums, Evening Primroses, Pæonies, Carnations, Narcissi, and are we to put aside or into the background all this glorious beauty for the sake of a few things that merely give us flat colour? No one who knows even to a slight extent what the plants of the northern and temperate world are, can admit that this sort of gardening should have the first place. There is nothing among tender plants to equal Windflowers in many kinds, flowering in spring, summer, and autumn; Torch Lilies, superb in autumn; Columbines; Hairbells; Delphiniums; Day Lilies; Everlasting Peas; Evening Primroses; Pæonies; Phloxes; Ranunculus, double and single, and the many fine species; all the noble autumn-blooming, Daisy-like flowers; plumy Spiræas; Globe Flowers; Lilies, in noble variety; Polyanthus; Primroses; Auriculas; Wallflowers; Meadow Saffrons; Crocuses, of the spring and autumn; Scillas; Snowflakes; Grape Hyacinths; Narcissi, in lovely variety; Tulips, the old florists' kinds, and many wild species; Carnations and Pinks; Cornflowers; Foxgloves; Stocks; Starworts; great Scarlet and other Poppies; Christmas Roses, Forget-me-nots; Pansies and many of the rock plants of the mountains of Europe—from the Alps to the hills of Greece, cushioned with Aubrietia, and sky-blue Windflowers — all hardy as the Docks by the frozen brooks.

My Flower-garden in Rose and Pink time. Sussex.

A frequent way in which people attempt to cultivate hardy flowers is in what is called the "mixed border," often made on the edge of a shrubbery, the roots of which leave little food or even light for the flowers. The face of a shrubbery should be broken and varied; the shrubs should not form a hard line, but here and there they should come full to the edge and finish it. The variety of positions and places afforded by the front of a shrubbery so arranged is tempting, but it is generally best to use plants which do not depend for their beauty on high culture—which, in fact, fight their way near shrubs—and there are a great many of them, such as the evergreen Candytufts, the large-leaved Rockfoils, Acanthus, Day Lilies, Solomon's Seal, Starworts, Leopard's Banes, Moon Daisies, and hardy native Ferns.

Flower borders fringing shrubberies.

A scattered, dotty mixed border along the face of a shrubbery gives a poor effect, but a good one may be secured by grouping the plants in the open spaces between the shrubs, making a careful selection of plants, each occupying a bold space. The presence of tree and shrub life is a great advantage to those who know how to use it. Here is a group of shrubs over which we can throw a delicate veil of some pretty creeper that would look stiff and wretched against a wall; there a shady recess beneath a flowering tree: instead of planting it up with shrubs in the common way cover the ground with Woodruff, which will form a pretty carpet and flower very early in the year, and through the Woodruff a few British Ferns; in front of this use only low plants, and we shall thus get a pretty little vista, with shade and a pleasant relief. Next we come to a bare patch on the margin. Cover it with a strong evergreen Candytuft, and let this form the edge. Then allow a group of Japan Quince to come right into the grass edge and break the margin; then a large group of broad-leaved Rockfoil, receding under the near bushes and trees; and so proceed making groups and colonies, considering every aid from shrub or tree, and never using a plant of which we do not know and enjoy the effect.

This plan is capable of much variety, whether we are dealing with an established and grown shrubbery, or a choice plantation of flowering Evergreens. In the last case, owing to the soil and the neat habit of the bushes, we have excellent conditions in which good culture is possible. One can have the finest things among them if the bushes are not jammed together. The ordinary way of planting shrubs is such that they grow together, and then it is not possible to have flowers between them, nor to see the true form of the bushes, which are lost in one solid leafy mass. In growing fine things—Lilies or Cardinal Flowers, or tall Evening Primroses

—among open bushes we may form a delightful garden, we secure sufficient space for the bushes to show their forms, and we get light and shade among them. In such plantations one might have in the back parts "secret" colonies of lovely things which it might not be well to show in the front of the border, or which required shade and shelter that the front did not afford.

It is not only in the flower garden where we may have much beauty of flower, but away from it there are many places better fitted for growing the more beautiful things which do not require continual attention. Unhappily, the common way of planting shrubberies has robbed many grass walks of all charm. The great trees, which take care of themselves, are often fine, but the common mixed plantation of Evergreens means death to the

Borders by grass walks in shade or sun.

Border against wall at Sidbury Manor, Devon.

variety and beauty of flower we may have by grass walks in sun or shade. The shrubs are frequently planted in mixtures, in which the most free-growing are so thickly set as soon to cover the whole ground, Cherry Laurel, Portugal Laurel, Privet, and such common things frequently killing all the choicer shrubs and forming dark heavy walls of leaves. Some of these Evergreens, being very hungry things, overrun the ground, rob the trees, and frequently, as in the case of the Portugal Laurels, give a dark monotonous effect while keeping the walks wet, airless, and lifeless.

Light and shade and the charm of colour are impossible in such cases with these heavy, dank Evergreens, often cut back, but once one is free of their slavery what delightful places there are for growing all hardy flowers in broad masses, from the handsome Oriental Hellebores of the early spring to the delicate lavenders of the Starworts in October.

Light and shade.

Not only hardy flowers, but graceful climbers like the wild Clematis, and lovely corners of light and shade may be made instead of the walls of sombre Evergreens. If we want the ground green with dwarf plants, we have no end of delightful plants at hand in the Ivies and Evergreens like Cotoneaster.

In many situations near houses, and especially old houses, there are delightful openings for a beautiful kind of flower border. The stone forms fine background, and there are no thieving tree roots. Here we have conditions exactly opposite to those in the shrubbery; here we can have the best soil, and keep it for our favourites; we can have Delphiniums, Lilies, Pæonies, Irises, and all choice plants well grown. Walls may be adorned with climbers of graceful growth, climbing Rose, Wistaria, Vine, or Clematis, which will help out our beautiful mixed border. Those must to some extent be trained, although they may be allowed a certain degree of abandoned grace even on a wall. In this kind of border we have, as a rule, no background of shrubs, and therefore we must get the choicest variety of plant life into the border itself and we must try to have a constant succession of interest. In winter this kind of border may have a bare look when seen from the windows, but the variety of good hardy plants is so great, that we can make it almost evergreen by using evergreen rock-plants. Where walls are broken with pillars, a still better effect may be obtained by training Vines and Wistaria along the top and over the pillars or the buttresses.

Flower borders against walls and houses.

We have here a frequent kind of mixed border often badly made, but which may be excellent. A good plan is to secure from about eight to ten feet of rich soil on each side of the walk, and cut the borders off from the main garden by a trellis of some kind from seven feet to nine feet high. This trellis may be of strong iron wire, or, better still, of simple rough oak branches, on which we may grow Climbing Roses and Clematis and all the choicer climbers. Moreover, we can grow them in their natural grace along the wires or rough branches, or up and across a rough wooden trellis, Rose and Jasmine showing their grace uncontrolled. We fix the main branches to the supports, and leave the rest to the winds, and form a fine type of flower border in this way, as we have the graceful climbing plants in contrast with the flowers in the border.

Flower borders in the fruit garden.

Mixed borders may be made in various ways; but it may be well to bear in mind the following points: Select only good plants; throw away weedy kinds, there is no scarcity of the best. See good collections. Put, at first, rare kinds in lines across four-feet nursery beds, so that

Mixed borders.

a stock of plants may be at hand. Make the choicest borders where they cannot be robbed by the roots of trees; see that the ground is good, and that it is at least two and a half feet deep, so deep that, in a dry season, the roots can seek their supplies far below the surface. Plant in naturally disposed groups, never repeating the same plant along the border at intervals, as is so often done with favourites. Do not graduate the plants in height from the front to the back, as is generally done, but sometimes let a bold plant come to the edge; and, on the other hand, let a little carpet of a dwarf plant pass in here and there to the back,

Border of hardy flowers on open margin of lawn.

so as to give a varied instead of a monotonous surface. Have no patience with bare ground, and cover the border with dwarf plants; do not put them along the front of the border only. Let Hepaticas and double and other Primroses, and Rockfoils, and Golden Moneywort and Stonecrops, and Forget-me-nots, and dwarf Phloxes, and many similar plants cover the ground among the tall plants betimes, at the back as well as the front. Let the little ground plants form broad patches and colonies by themselves occasionally, and let them pass into and under other plants.

Thoroughly prepared at first, the border might remain for years without any digging in the usual sense. When a plant is old and rather too thick, never hesitate to replant it on a wet day in the middle of August any more than in the middle of winter. Take

it up and put a fresh bold group in fresh ground; the young plants will have plenty of roots by the winter, and in the following spring will flower much stronger than if they had been transplanted in spring or in winter. Do not pay much attention to labelling; if a plant is not worth knowing, it is not worth growing; let each good thing be so bold and so well grown as to make its presence felt.

The plants of the older kind of mixed border were, like the grasses of the meadows of the northern world, stricken to the earth by winter, and the border was not nearly so pretty then as the withered grass of the plain or copse. But since the revival of interest in hardy and Alpine flowers, and the many introductions of recent years, we have a great number of beautiful plants that are evergreen in winter and that enable us to make evergreen borders. The great white blanket that covers the north and many mountain ranges in winter protects also for months many Alpine plants which do not lose their leaves in winter, such as Rockfoils, Stonecrops, Primroses, Gentians, and Christmas Roses. The most delicate of Alpine plants suffer, when exposed to our winter, from excitement of growth, to which they are not subject in their own home, but many others do not mind our winters much, and it is easy by good choice of plants to make excellent borders wholly or in greater part evergreen.

Evergreen borders of hardy flowers.

These are not only good as evergreens, but they are delightful in colour, many being beautiful in flower in spring, and having also the charm of assuming their most refreshing green just when other plants are dying in autumn. Along with these rock and herbaceous plants we may group a great many dwarf shrubs that come almost between the true shrub and the Alpine flower—little woody evergreen creeping things like the dwarf Partridge Berry, Canadian Cornel, hardy Heaths, and Sand Myrtles, often good in colour when grouped. Among these various plants we have plenty for evergreen borders, and this is important, as, while many might object to the bare earth of the ordinary border of herbaceous plants near the house or in other favourite spots, it is different with borders of evergreen plants, which may be charming and natural in effect throughout the year.

Of garden pictures, there are few prettier than Crocus, Snowdrops, or Scilla coming through the green, moss-like carpets in these evergreen borders, far prettier to those who love quiet and natural colour than more showy effects. Often narrow evergreen borders are the best things that can be placed at the foot of important walls, as the way of allowing grass to go right up to the walls is a foolish one, and often leads to injury to the wall trees. A narrow border

Border of Delphiniums in the garden at Hall Green, Warwickshire.

cut off by a natural stone edging from the grass or walk, is best: even a border of this size may have many lovely things, from early Cyclamen to the best Meadow Saffrons in the autumn. Besides the flowers already named, we have Violets, Periwinkles, Carnations, Pinks, Barrenworts, charming in foliage, purple Rock Cresses, Omphalodes, Iris, Acanthus, Indian and other Strawberries, Houseleeks, Thymes, Forget-me-nots, Sandworts, Gentianella, Lavender, Rosemary, hardy Rock Roses, and many native and other hardy evergreen Ferns in all their fine variety; Bamboos, Ruscus and Dwarf Savin, these are an essential aid in the making of evergreen borders.

Trellising to endure.

Many years of trial with the best wooden trellising disclosed to me its defects as to endurance, even the best wooden trellising oak perishing on the ground or being blown over in storms. The same objection applies to Chestnut *or any native wood.* The result of various trials for many years was to compel the use of an iron base for our trellis at the back of mixed borders, and so cut off the oak used from the wet ground. We used the ordinary iron fence in the first instance, adding a foot or so to the height by means of an iron attachment. This was painted oak colour and fitted with upright heart of oak. The battens do not touch the ground and project a little above the top iron rail. The effect is very good. The best plants for it we found to be Clematis, Roses of the nobler climbing type, like Bouquet d'Or, the Japanese and other Vines. The height of the finished trellis is 5 foot oak battens in seasoned oak $1\frac{1}{2}$ by $\frac{3}{4}$ inches. For backgrounds, so essential to the good mixed border, this manner of trellising is the best.

Hardy Border Flowers for British Gardens.

From this list all families not quite hardy in Britain are excluded, for whatever we may do with flower-beds, mixed borders should be mainly of hardy plants, and we ought to be able to plant or refresh them at any time through the autumn or winter months. Well-planned mixed borders, covered as they mostly should be with rock plants forming green carpets, should have few gaps in early summer, but where these occur they may be filled up with half-hardy plants as the stock of plants may permit, or with good annuals.

Acanthus	Anthericum	Calendula	Convolvulus	Epimedium
Achillea	Antirrhinum	Calliopsis	Coreopsis	Eremurus
Acis	Arabis	Calochortus	Corydalis	Erigeron
Aconitum	Arenaria	Caltha in var.	Cyclamen	Erodium
Adonis	Argemone	Campanula	Cypripedium	Eryngium
Agapanthus	Armeria	Carnations	Delphinium	Erythronium
Agrostemma	Arnebia	Catananche	Dianthus	Eschscholtzia
Alstrœmeria in var.	Aster	Centaurea	Dielytra	Fritillaria
Alysum	Aubrietia	Cheiranthus	Digitalis	Fuchsia
Amaryllis	Bartonia	Chelone	Dodecatheon	Funkia
Amberboa	Bocconia	Chrysanthemum	Doronicum	Gaillardia
Anemone	Brodiæa in var.	Convallaria	Echinops	Galtonia

Geranium
Geum
Gypsophila
Helenium
Helianthemum
Helianthus
Helichrysum
Helleborus
Hepatica
Hesperis
Hollyhock
Iberis
Iris
Kniphofia
Lathyrus
Lavatera
Lavendula
Leucojum
Lilium
Linaria
Linum
Lobelia
Lupinus
Lychnis
Lythrum
Malope
Malva
Meconopsis
Megasea
Mimulus
Mirabilis
Monarda
Montbretia
Myosotis
Narcissus
Œnothera
Omphalodes
Onosma
Ornithogalum
Orobus
Pæonia
Pancratium
Pansy
Papaver
Pentstemon
Phlomis
Phlox
Plumbago
Polemonium
Potentilla
Primula
Pyrethrum
Ranunculus
Rhodanthe
Rockets
Rudbeckia
Salvia
Saponaria
Saxifraga
Scabiosa
Sedum
Spiræa
Statice
Stocks
Sweet Pea
Sweet William
Symphytum
Thymus
Tigridia
Tradescantia
Trillium
Trollius
Tropæolum
Tulipa
Veratrum
Verbascum
Veronica
Viola
Wallflower
Zephyranthes
Zinnia

Sandstone Bench on terrace, Gravetye, Sussex.

CHAPTER IX.

THE RESERVE AND CUT-FLOWER GARDENS.

NOTHING is worse in gardening than the way in which plants of all kinds are huddled together without regard to fitness for association in stature, in time of blooming, or in needs of culture. The common scene of confusion is the shrubbery border, into which Carnations, annuals, Alpine flowers, and rampant herbs are often thrown, to dwindle and perish. There is no shrubbery border that could not be made beautiful by carpeting it with wood and copse plants of the northern world in broad groups, but many of our favourite flowers are not wood plants, and many—for example, Carnations—cannot maintain the struggle against the bushes and trees. Hardy plants should be divided into two broad series at least—those which thrive in and near woody growth, and those which must perish there. Solomon's Seal and the blue Apennine Anemone are types of plants that one may grow in any shady place: Carnation, Pink, Auricula are among the flowers which must have good soil and be kept away from tree roots.

One good plan that all can follow is the growing of certain plants without heed to their place in any design, but not in any kind of "mixed border" or in other mixed arrangements. Many hardy flowers are worthy of special culture, and good results cannot often be got without it, whether we grow Carnations, Pinks, Pansies, Phloxes, Lilies, Stocks, double Wallflowers, Cloves, or scarlet Lobelias. Even a choice annual, such as Rhodanthe, or a beautiful grass, it is not easy to succeed with unless it has a fair chance, away from the crowding of the mixed border. This special culture of favourite flowers may be best carried out in a plot of ground set aside for beds of the choicer flowers, in a piece of ground in or near the kitchen garden or any other open position, sheltered, but not shaded. With the aid of

such a division of the garden, the cultivation of many fine hardy plants becomes a pleasure. When any plant gets tired of its bed, it is easy to make the Carnation bed of past years the bulb one for the next year, and so on. It would be easy to change one's favourites from bed to bed, so that deep-rooting plants should follow surface-rooting kinds, and thus the freshness of the garden would be kept up. If any edging is used, it should be of natural stone sunk in the earth, but the abolition of all edgings, beyond one or two main lines, would tend to simplify the work. Such a plot is excellent for giving cut flowers in quantity, and is also a great aid as a nursery, while it would also be a help to exchanges with friends or neighbours, in the generous way of all true gardeners. The space occupied by it will depend upon the size and wants of the place; but, wherever the room can be spared, an eighth of an acre might be devoted to the culture in simple beds of favourite flowers.

What to grow in the reserve garden.

Among the fair flowers which in this way may be cultivated, each separately and well, are the old Clove Carnations — white, crimson, and scarlet, as well as many other kinds; tall Phloxes, so fair in country gardens in the autumn; scarlet Lobelias, splendid in colour; Pinks of many kinds; Persian and Turban Ranunculus; bright old garden Anemones, and the finer species of Anemone; Lilies, and as many as possible of the splendid kinds introduced into our gardens within the past dozen years from California and Japan; Delphiniums; double Rockets; Irises, English, Spanish, Japanese, and German; Pansies in great variety; Tiger Flowers; the Columbine, including the lovely blue Columbine of the Rocky Mountains; Pyrethrums, Chinese Pinks, Scabious, Sweet Williams; Stocks of many kinds; Wallflowers, double and single; the annual Phloxes; China Asters, the Sweet Sultan, in two or three forms; showy Chrysanthemums; Grasses for cutting in winter; Grape Hyacinths; rare Narcissus; Meadow Saffrons; Lilies of the Valley; Crocuses, the autumnal as well as the vernal kinds; Dahlias, cactus and single; Pæonies; Primroses, double and single; Pentstemons; Polyanthus; Oxlips; Tulips, many early and late kinds; sweet Violets; American Cowslips; Gladioli; Christmas Roses; and, lastly, Everlasting Flowers, which may be grown with the pretty Grasses, and, like them, be gathered for the house in winter.

In these special plots for hardy flowers are included the various hardy florists' flowers. The term "florists' flowers" was once applied to flowers supposed to be popular with amateurs and florists, but it had never any clear meaning. A Rose is a florist's flower; but it is more—it is everybody's flower, and we call it a Rose, having no use for

any other term. The reserve garden is a good place to grow flowers for cutting for the house. A supply equal to that of a dozen plant houses can be got from an open square in the kitchen garden or any piece of good ground. For eight months there is a procession of open-air flowers, which can easily be grown in sufficient quantity to allow the cutting of plenty for every want. A bed or a few lines of each favourite in a plot of good soil would give a great number of flowers, and these, aided by the Roses and other bush and tree flowers about the garden, would yield all the flowers that a large house would require, and many besides for hospitals and for those who have no gardens. Flowers grown for cutting should be carefully selected as regards odour, form, and colour.

Double cropping of beds.

We have had evidence of the good way in which inter-cropping suits plants in nursery beds, and there is reason to believe that the presence in rich ground of two plants wholly different in their nature is a good plan. A collection of Narcissi, with lines between of Delphiniums and hardy Fuchsias, that is to say, two lines of each in a 4-foot bed, will thrive. The same is true of other hardy spring bulbs, which may be alternated with the choicer perennials that bloom in autumn; and this way is a good one for people who live in their gardens chiefly in spring and autumn, as it secures two distinct seasons of bloom in the same ground. This applies to store beds as distinct from the regular flower garden, though some kind of inter-cropping would give an excellent result in the flower garden also; as, for instance, if we have beds of Roses, we might have them carpeted with early bulbs, and be none the worse for it, and so also with Pæonies and many other flowers. It wants some care to find out which go best together; but, given that, all is easy enough.

Gardens of One Flower.

Apart from the reserve garden, with its flowers in close masses, we may have gardens of a favourite flower and its forms, for the purpose of studying a family or adding to it by collecting or cross-breeding. Such gardens now and then owe their existence to the difficulty of cultivating a flower, as was the case of a charming garden of the lovely forms of our native Primrose formed by a friend of mine, who thus describes it:—

A Primrose garden.

No flower better deserves a garden to itself than the Primrose. It is so old a favourite, and has been cultivated into so many forms, that any one determined to have a Primrose garden may choose the kind he likes best, and set to work accordingly. There are the single-stalked Primroses, the earliest of all, flowering from the middle of March onwards, while some may be had in bloom as soon

A Primrose garden in Surrey.

as the end of February. They range in colour from pure white to deep primrose, and from palest pinky-lilac through strong red-purples to a colour nearly approaching blue, and there are also rich reds of many shades. There is not as yet any Primrose of a true pink colour, nor, though the type colour is yellow, are there as yet any strong yellows of the orange class. There are also double Primroses in nearly all the same colourings. The Polyanthus with its neat trusses of small flowers, though beautiful in the hand and indispensable in the good garden of hardy flowers, is not a plant for the Primrose garden, as it makes no show in the mass. The grand Primroses for garden effect are the large bunch-flowered kinds, white, yellow, and orange-coloured, red, crimson, and rich brown; of infinite variety in form, texture, habit, and colouring, easy to raise to any amount by seed, as also by division of the older plants. A Primrose garden (part of which is here illustrated), that for some years has been an ever-increasing source of pleasure and interest to its owners, was formed a few years ago by making an opening about 70 yards long, and varying from 10 to 15 yards wide, through a wild copse of young Birch trees. The natural soil was very poor and sandy, so it was prepared by a thorough trenching and a liberal addition of loam and leaf soil. No formal walks are made, but one main track is trodden down about 2 feet wide near the middle of the space, dividing into two here and there, where a broader clearing makes it desirable to have two paths in the width. The older divided plants are put into groups of a colour together from twenty to fifty of a sort. The groups of seedlings are of necessity more various, though they are more or less true to the parent colour, so that a patch of a hundred seedlings—from yellow, for instance—will give a general effect of yellow throughout the group. The whites and yellows are kept at one end of the garden, and the reds at the other; the deepest yellows next to the reds. Seen from a little distance, the yellow and white part of the Primrose garden looks like a river of silver and gold flowing through the copse. The white stems of the Birches and the tender green of their young leaves help to form a pretty picture, which is at its best when the whole is illuminated by the evening sunlight.

Some of the Plants for Reserve Garden and for cutting Flowers.

Carnations
Phloxes
Scarlet Lobelias
Pinks
Double Rockets
Iris
Pansies
Alstrœmeria
Tigridia
Columbines
Pyrethrum
Schizostylis
Chinese Pinks
Scabious
Blue Cornflower
Sweet Williams
Stocks
Wallflowers
Grape Hyacinths
Grasses, the more graceful kinds
Zinnias
Sweet Sultan
Ranunculus
Anemone
Lilies
Delphiniums
Narcissus
China Asters
Campanula
Chrysanthemums
Meadow Saffrons
Roses
Crinum
Crocus
Dahlia
Pæonies
Pentstemon
Primroses
Polyanthus
Oxlips
Tulips
Violets
American Cowslips
Gaillardia
Gladiolus
Everlastings
Christmas Roses
Lenten Roses

CHAPTER X.

HARDY BULBOUS FLOWERS.

AT no distant time lists of these things were mostly looked at for the sake of getting a few bulbs to force, but that day is past, at least for all who now see the great part which hardy bulbous and tuberous plants must take in the outdoor gardens of the future. Since those days the hills of California and of Japan alone have given us a noble Lily garden, and the plants of this order in cultivation now form a lovely host. We are not nearly so likely to want novelties as knowledge of how to make effective use of the nobler plants, such as the Narcissus, the glory of the spring, as the Lily is of the summer garden.

We may indeed be often tempted with Zephyr flowers, and Ixias and other plants, beautiful in warmer countries than ours, but delicate here, and only living with us as the result of care; but there are so many lovely things from the mountains and plains of the northern world, as hardy as the wild Hyacinths of British woods, that our search will be more for the nobler materials and how to make artistic use of them than in quest of novelty.

Lilies.

Who of those who remember the Orange and White Lilies of all English and Irish gardens would have looked for the splendid Lilies that have come to us within less than a generation? For size, and form, and lovely colour they surpass all we had ever dreamt of even among tropical flowers. The variety is great, but the main thing for all who care for them is how to possess their beauty with the least amount of care; and, happily, the question has been solved for many handsome kinds by planting them in the peat beds that were made at first wholly in the interest of the American shrubs, as some of the finest Lilies thrive admirably in these. Nor need we neglect the mixed borders because we have new ways for our Lilies, as several

of the European Lilies thrive in ordinary borders. They may be naturalised too, or some of them, in deep moist peat bottoms; for example, the American swamp Lily (L. superbum). Lilies are so varied in their nature and stature that they may adorn almost any aspect in sun or shade. The new and rare among them will have special beds or borders, and we have men who will have Lily Gardens. And as these lovely flowers tumble into our lap from the woods and hills of Western China, Japan, and California, untouched by man until he found them made to his hand a few years ago, it was reasonable to suppose that some of them would take care of themselves, if trusted in likely spots, with us. I put some of the Panther Lily deep in a leafy hollow in a Sussex wood, just to see if it would survive in such conditions. Whether owing to a series of cold wet seasons and the want of the glorious sun of the hills in Nevada County, California, where I found it, I know not, but after the first season it did not come up. I thought no more of it, but a friend going into the same wood some years afterwards found a colony of it in bloom.

Narcissus.

Next to the Lily in value as an outdoor flower is the Narcissus, though when we know the Iris better it may find a high place. But the wondrous development of the garden forms of Narcissus during recent years, and their fitness for our climate, give it great value. Mountain plants in origin, for the most part they are as hardy as rushes, and those few southern forms that will only live in dry banks and at the foot of warm walls need not concern us who look for pictures of Narcissus in the open air. We have not to ask where the Narcissus will grow, as there are few places they will not grow in with the usual garden culture, and in some cool, loamy soils they take kindly to the turf. Hence it is easy on many soils to have a garden of these flowers, grouped and massed, set in turf, and giving us many flowers for the house as well as pictures in lawn and meadow. These precious early flowers will also have their place in the garden for cut flowers or the nursery bed, where the many new forms of Narcissus may take their place until plentiful. The true hardiness of the flower allows of its being enjoyed in all parts of these scattered islands. In planting Narcissus in the wild garden the mistake is in planting all over the surface without relief. I have made the mistake myself and have regretted it. When they cover the ground like tiles on a roof, they are not nearly as effective as in simple groups. The practice of the Trade of offering mixed kinds is attractive but quite wrong. Much the best way is to use mixtures rarely and always to have distinct plants.

The Iris is one of the oldest of our garden flowers, in many forms

Group of Giant Indian Lilies in half-shady place (Surrey).

too, but, like the Lily, it has come to us in greater novelty and beauty of recent years, and as districts in Central Asia and Asia Minor are opened to collectors, we must have our Iris gardens too. And what so fair as an Iris garden? They are the Orchids of the north, many of them as hardy as reeds, and with more richness of colour than Orchids. The old Irises of our gardens are usually of the Germanica class; there is much variety among these groups, and they are very hardy and precious, and excellent for the adornment of gardens and even walls and thatched roofs, as we see in France, the Iris of this great group having a valuable power of thriving on such surfaces as well as on good soil.

Iris.

There is a group of waterside and water-loving Iris, much less seen in our gardens than the above, and some of them not yet come to us, but of great value. They are allied to the common yellow Iris of our watercourses, but are taller and richer in colour, the golden Iris (aurea), Monnieri, and ochroleuca being the best known so far, and very free, hardy, and beautiful plants they are, thriving, too, almost anywhere, but best in rich, moist soil. And we have the distinct gain of the splendid Japanese Iris, in its many strange forms, the Japanese surpassing all waterside Irises in its wide range of colour, though most beautiful perhaps in its simple forms, white and purple. This plant, though its beauty suggests that of the tropics, will grow side by side with our great water dock by any lake-side or even in a clay ditch, where only the coarsest weeds live. The Siberian Iris and the forms near it are very graceful beside streams or ponds, either in open or copsy places, and far more graceful and charming in such positions than in set borders. All these water-loving Irises will do in the wild garden in bold groups when we can spare them.

Then there are the brilliant purple and gold Iris reticulata and its allies, little bulbous Irises, for the spring garden, early and charming things, many beautiful; Irises that flower in winter and early spring, like the Algerian Iris; others happy in Britain on warm soils and warm corners, and some for the rock garden, like the crested Iris; and the many pretty forms of Iris pumila, of some of which edgings were made in old gardens. The foliage of the evergreen Iris is so graceful and usually so nice in colour that artistic use may be made of it in that way. The most novel of all the groups of Iris, however, are the Cushion Irises, which promise much beauty, but are as yet too little known for us to see how far that beauty may be preserved in our gardens. The old Iris Susiana has been known for many years, and some of its allies, like I. Lorteti and the Wolf Iris, seem more hardy and not less beautiful.

Tulips.

The old garden Tulip, a favourite for generations, grown in the so-called florist varieties, and the source once of severe mania, is but one of a large number of wild Tulipa, many of which have come to us of late years from Central Asia. The old Tulips are the forms of an Italian species (T. Gesneriana), and these varieties are worthy of all the attention they ever had; but the wild form is as good as any of its varieties for splendid effect, and a selection should be made of its simpler colours, including a good white and yellow. The bedding Tulips, which are earlier in blooming, are forms of T. scabriscapa, and though useful, are not nearly so valuable for their effect as the late tulips. The new Tulips coming from Central Asia and other lands promise to be very valuable, too, for their effect, though our climate may not suit all of them, as it does the fine hardy Gesneriana. The colour of these Tulips is too fine to be missed, and, as the bloom is too short-lived to give beds to them, the best way is to plant them in borders: when scarce, in the nursery, when plentiful, in the wild garden. The later these wild Tulips come into bloom the better, as it brings their nobler colour in when the harsh changes of the spring are nearly over, and in the north they will come in with the early summer days.

Crocus.

If the Crocus has any fault it is courage in coming so early that it has to face every trouble of the spring, and green winters induce it to open too early. Yet what promise it brings us of the many-blossomed spring in border and in lawn; for, in addition to the old and good way in garden borders, the Crocus, at least all the forms and series and the hardy and vigorous European kinds, is easily naturalised in lawns or meadow turf, and others even under Beech trees, as in Crowsley Park. As regards this question, it should be remembered that the Crocus is wild in rich meadow grass in various parts of England, at Nottingham and in Essex. The autumnal kinds may be naturalised too, but they ask perhaps for a warmer soil than the vernal kinds. Recent years have brought us many new Crocuses. Soil has much to do with the effect of the Crocus, and calcareous and warm soils they love, on cold clays apt to go back.

Snowdrop and Snowflake.

The old Snowdrop gives as good an effect as any other, but the many new varieties give the Snowdrop more value. Whether these new forms are species or varieties matters little; their value as garden plants is the only question that concerns flower gardeners. Who would have thought a few years ago that our Snowdrop was only one of a large number taking care of themselves in the mountains of Asia Minor and near regions? Others are coming, and when

these increase in our gardens we shall have fresh aids to make our spring gardens more beautiful. As these new kinds are mostly plants from cool regions, they will probably be easily naturalised in many soils. The Snowflake must not be forgotten—few spring flowers are more free than the vernal Snowflake growing in moist soils, tallest and best in peaty soils.

Scillas and their allies.

The lovely early group of plants allied to our Wood Hyacinth—Scilla, Chionodoxa and Hyacinthus—ask for some thought as to their artistic use. The Scillas are well known, but the newer forms of Chionodoxa give an unlooked-for loveliness of blue very early in the spring, and show a pretty variety in their delicate colours; and yet there is no more lovely thing among them than the Taurian

Narcissus princeps.

Scilla. It is so early and so deep a blue that one may get rich effects with it very early. The more tiny and select of all these plants are Alpine, delightful for rock-gardens, and all the more so if we can use them in visible groups.

Day, African and Cape Lilies.

Apart from the true Lilies there are certain plants to which the name is also given betimes, such as the Torch Lily (Kniphofia), the Day Lily (Hemerocallis), the Peruvian Lily (Alstrœmeria), the African Lily (Agapanthus), the Belladonna Lily (Amaryllis), the Cape Lily (Crinum), the Plantain Lily (Funkia), the Wood Lily (Trillium), the Mariposa Lily (Calochortus), besides other Lilies that do not come under our present heading, or which do not ask for thought as regards their effective use.

The Torch Lilies are brilliant in colour, and have been added

to of recent years, but severe winters have thinned them, and they will always be best in dry soils and in sunny positions, protected in winter. They are best kept apart from flowers more refined in colour, such as the Tea Rose. The Day Lilies are a really hardy race, and most of them will grow anywhere. With their fine leaves and showy, well-formed flowers, they may be used with good effect in various ways. The Belladonna Lily can be grown in no more effective way than the old one of planting it under south walls. The Cape Lilies have increased of late years from hybrids and otherwise, and are worth attention in deep soil in warm corners near walls that protect them from the north. The African Lily is most important for its unrivalled blue, and there is a hardy kind, Moreanus. It is one of the plants for which the expense of tubs or large pots is worth indulging in, and there are new and handsome kinds, which make the culture more interesting. The Wood Lilies are valuable because they give us effects both distinct and beautiful in peat borders or bog gardens. The best effects are in half-shady spots. The Mariposa Lilies are beautiful, but they come from one of the best climates in the world, and one can hardly hope that they will thrive in our climate without special care. Yet such charming flowers will always have a place in curious gardens, where they will thrive in frames and warm corners.

Anemone and Ranunculus.

The Poppy Anemone has been a welcome flower in our gardens for hundreds of years, and it should never be forgotten, save in cold soils where it perishes. Many now grow it well from seed, but the old way of planting the tubers of favourite kinds and colours should be carried out in the flower garden in Rose beds or in any beds to spare. The Scarlet Anemone and its varieties is also precious; the Star Anemone, so charming in Italy and Greece in spring, is rarely seen happy in our gardens, which are too cold for it, no doubt, so it may well be left out in favour of the hardier sorts. Valuable as the brightest Anemones are, the old Turban and Persian Ranunculus and other forms were once a great charm of the flower garden, and should not be forgotten in warm soils, where they thrive, but they perish in severe winters.

Various bulbs.

The old Dog's-tooth Violet of the mountains of Europe has been joined in our gardens of recent years by a number of its American relations, graceful plants for peat borders, but as yet not so valuable as the European kind in its various forms, which are among the prettiest early spring flowers. They are, moreover, true wild garden plants, which thrive in turf, coming up every year even more faithfully than Crocus or Snowdrop. The Snake's-head,

too (Fritillaria), is a charming wild garden plant, thriving in wet meadows. The new yellow Fritillaries give a greater interest to this group of plants, some of which are fitted for the wild garden, but we never could see the charms of the Crown Imperials, with their offensive odour. The Stars of Bethlehem (Ornithogalum) thrive in grass, and are pretty in it. The Montbretias are plants of somewhat recent appearance in our gardens, and some have a hardiness we do not look for in Cape plants, and a tenacious way of growing even in cold, poor soil, and are, therefore, valuable where we wish to have close tufts of graceful leaves and gay blossoms below flowering shrubs not set too closely on the ground. Grape Hyacinths (Muscari) are often very pretty, and nearly always hardy. I use them freely in grass, where their blue is very pretty in spring. In close turf they may not thrive in sandy soils more free. One (racemosus) is wild in the Eastern counties. The best is *conicum*, free on many soils. It deserves to be in sandy fields.

Giant Asphodel.

Among the new plants we have one of fine distinction in the Giant Asphodel (Eremurus), plants of noble port and vigour, which, best grouped among shrubs, hold their full effect.

So noble a plant as the Gladiolus should not have been left to the end, but the fact that the finest class are only half hardy makes them less important in our country than Lilies and Narcissi, that give so much beauty with little or no care. The years pass so swiftly, and are so full of cares, that things demanding two important attentions yearly—*i.e.*, taking up and planting—must take a minor place, except in the case of growers who make a special care of them. Generally our climate is against the older Gladioli, and disease very often comes with attempt to grow them.

Hardy bulbs for cut flowers.

The special or reserve garden includes beds for hardy bulbs—a very good way of growing them, and for supplying flowers for the house. A curious habit of the flowers of bulbs is that, cut from the plants when just opening and put into water, they get larger than they would if left on the plants out of doors, and this should lead us to encourage many lovely flowers among hardy bulbs that are among the best for our rooms. Hitherto the bane of the gardener has been cutting flowers for the house; but if cutting prolongs his bloom, strengthens his plants, and gives all who care for his flowers a fuller enjoyment of them, we may secure his powerful aid. Consider what one may escape in storms, frosts, and other dangers if a flower, cut just on arriving at maturity, lasts longer indoors than out, and actually, as in the case of the Narcissus, gets larger! Narcissi, through their

hardiness and drooping heads, endure our climate better than any other flowers, and yet severe storms will beat them about and destroy flowers that might have lived for days in the house. Large showy flowers like Tulips, suffer with every heavy shower. Anything which makes it easier to have flowers in the house is a real gain; their exquisite forms are best seen, and tell their story best when brought near to the eye. A flower of our yellow wood Tulip opening and closing, and showing its changing form in a room, gives ideas of beauty which cannot be gleaned by glancing at a bed of bulbs.

Bed of Italian Narcissus.

Hardy bulbs among shrubs.

One of the most marked improvements is the planting of handsome bulbs in masses of Rhododendrons and like bushes. These beds, as usually planted, are interesting only when in flower, and not always then, owing to the flat surface into which the shrubs are pressed; Lilies, therefore, and the finer bulbs may with great advantage be placed among the shrubs. In many cases where this plan has been carried out, it has almost changed the entire aspects of gardens, and given various beautiful types of life instead of only one, and many fine rare bulbs find a home in such beds, which should be sacred from the spade. In placing choice, peat-loving shrubs, give the bushes room to fully attain their natural forms, and plant the interspaces with Lilies, giant Asphodels, the tall Larkspurs and the golden Iris (aurea). Light and shade, relief and grace, are among the merits of this mode of planting. Beds of the smaller shrubs will do admirably for the smaller and more delicate bulbs, the shelter

of low shrubs being an advantage to many little bulbs whose leaves are apt to suffer from cold winds. In this way we get relief, variety, and longer bloom, and the shrubs show their forms better when they have free play of light and air about them.

Anemones in September, Cumberland.

Bold beds of Lilies and the taller bulbs are admirable for the lawn, and for quiet corners of the pleasure-ground. At Moulton Grange some years ago I saw on the turf in a quiet corner a bed of Tiger Lilies which had no other flowers near to mar its beauty. It was a large oval bed, and the colour of the finely grown Lilies

Bulbs in beds on turf.

was brilliant and effective seen through the trees and glades. In point of colour alone, nothing could be better; the mass of bloom was profuse, and the plants, about 6 feet high, told well in the garden landscape. Among the most lovely beds are those of the nobler Lilies, while Iris, and many beautiful Day Lily, Pæony, Gladiolus, and Cape Hyacinth may be grouped with them or near them. It may be as well to note that what is meant here is not wild gardening with bulbs, but very good cultivation of them, and surfacing and edging the beds with spring flowers.

Some Hardy Bulbous and Tuberous Plants for British Flower Gardens.

Acis	Calochortus	Gladiolus	Narcissus	Scilla
Agapanthus	Chionodoxa	Galtonia	Orchis	Sparaxis
Allium	Colchicum	Hyacinthus	Ornithogalum	Sternbergia
Alstrœmeria	Convallaria	Iris	Oxalis	Tigridia
Amaryllis	Crocus	Ixiolirion	Pæonia	Trillium
Anemone	Cyclamen	Leucojum	Pancratium	Triteleia
Anthericum	Erythronium	Lilium	Puschkinia	Tritonia
Arum	Fritillaria	Montbretia	Ranunculus	Tropæolum
Calla	Galanthus	Muscari	Schizostylis	Tulipa

CHAPTER XI.

ANNUAL AND BIENNIAL PLANTS.

WHATEVER we may do with perennials, shrubs, or hardy bulbs, the plants in this class must ever be of great value to the flower gardener; and among the most pleasant memories of flower garden things are often those of annual or biennial plants such as tall and splendid Stocks in a farmhouse garden on a chalky soil, seen on a bright day in early spring; Wallflowers in London market gardens and in cottage gardens, when not cut down by cruel winters; Snapdragons on old garden walls, and bright Marigolds everywhere; Hollyhock lines, Sweet Pea hedges, and Mignonette carpets; Evening Primrose, Poppies, Sweet Scabious, and Sweet Williams. However rich a garden may be in hardy flowers or bedding plants, it is wise in our climate to depend much on annual flowers.

Like most other plants, they enjoy fresh ground, and where they are grown in borders by themselves it is easy to enrich the ground, and make it fitted for them, easier than when grown among perennials, Roses, and the like. With this precaution the culture is very simple.

In wet seasons and in wet northern districts annuals surprise us by their vigour and beauty. In warmer counties the defect of the heat may in the case of the hardy kinds be met by autumn sowing in good ground. The autumn sowings are the best. The plants not only flower much sooner, but, where the soil and climate suit them, they are stronger and more beautiful.

Among annual flowers we have the lovely Everlastings of Australia, which have an order of beauty distinct from those we see in gardens into which annuals do not enter. Carefully gathered, they may adorn our houses during the winter. The Pimpernels, which with their pretty blue flowers were once made charming use of in gardens, are much neglected. The Mexican Poppy is a pretty flower and quite distinct. The annual Chrysanthemums of Southern Europe and Northern Africa, and indeed of our own fields, are strong in effect. The annual Bindweeds are pretty, and in southern gardens may be used. The annual Larkspurs are so little used in gardens that it is only in seed farms that we have the pleasure of seeing

Everlastings.

White Foxglove. Engraved from a photograph by H. Hyde of a self-sown plant, Gravetye Manor.

them now and then in all their beauty. The annual Chinese Pinks are brilliant grown in sunny beds and good soil. Our native Foxglove, seen in many of our woodlands, breaks in the hands of the gardener into varieties well worth growing, if not in the garden, in shrubberies and in copses and woods. It is a good plan, when any ground is broken up for fence-making or rough planting, to scatter a few seeds of the white and other pretty kinds and leave them to take care of themselves. There are many graceful grasses which may be treated as annuals, and their flowers, like the Everlasting flowers, be in bloom through the winter. The annual Hibiscus when well grown are effective plants, and the same may be said of the Hollyhock, for which probably the best way is to raise it from seed, as in that way we can fight better against the killing fungus. The Single Hollyhock is worthy of much care and is often very effective. The Flaxes are very pretty annuals, red and blue, and even the common cultivated Flax is a beautiful plant. In our day quite a series of beautiful form of Mignonette have come to add to the charms of that always welcome plant. The annual and biennial Evening Primroses are often beautiful in evenings and at night.

The Sweet Scabious are pretty and varied in colour and so fragrant. Of Sweet Peas there is a delightful series in our own day, when so many kinds have been raised that one could easily make a garden of them. No words can exaggerate their value, either in mixed or separate colours, and they should be both autumn and spring sown, so as to get a chance of those fine tall hedges of Sweet Peas which come where we sow in autumn and get the plants safely through the winter, and they are doubly valuable owing to the many beautiful new kinds.

Some annual plants, like the Cornflower, Sweet Sultan, Sweet Pea, Scabious, are precious for cutting for the house, and may be grown with the hardy flowers for this purpose where there is room for it; others are good for trellis-work, and others for surfaces we wish to adorn with pretty climbers, such as Canary Creeper, Gourds, and Convolvulus.

The various French and African Marigolds, and the prettier forms of the pot Marigold, are very showy plants, and, for those who love much colour, are almost essential, and the same may be said of the various annual Calliopsis. The China Aster used to be grown much better than it is generally now, and there is no doubt, where people do not get much colour from other plants, such as Roses, the China Aster in its many forms is useful. But more important by far are the various kinds of Stock, which have the added charm of fragrance, and which do so well in many gardens with light and warm soils in the north and in Scotland. Cosmos

are pretty plants worthy of a place, and the best of the annual kinds of Datura are picturesque and distinct. Chinese Pinks are very beautiful and charming in variety. The Gilias are very pretty, varied, and hardy, and some forming a carpet for taller plants.

The Godetias, allied to the Evening Primroses, are handsome when well grown, especially the white and simple coloured kinds, and where they live over the winter, from autumn sowing, they are very strong and handsome the following year. The many varieties of the annual Ipomæa are graceful, there being much charming variety among the blooms, and with these may be named the various kinds of Convolvulus minor, which does not climb. Lavatera and Malope are handsome plants in the autumn garden, as are the Lupins, well grown, and the Nemesia from the Cape is charming. We think the various Nigellas very interesting, while every one should have the annual Phloxes, now to be had in such good colours, and the Portulacas, which are so brilliant on warm borders. The Salpiglossis is a beautiful plant, especially where we take the trouble to select the simpler colours, the amber coloured one being very fine. The Sweet Scabious has charming varieties, and is often very fine in colour, though not so good on heavy and cool soils.

The Sweet Sultans are pretty, and useful for cutting for the house, and Love-lies-bleeding (Amaranthus) and its allies are quaintly effective. The Snapdragons, which are often treated as annuals, are frequently excellent when grown in their simple colours, the striped kinds not being nearly so good in effect. The annual Poppies are essential where a good display is hoped for from annuals, also the Mexican and Californian Poppies. Such handsome plants as the varieties of Tropæolum are also many of them beautiful annuals.

Half-hardy plants as annuals.

It is not every one who has the means to winter a large number of tender bedding plants, and the keeping of a large stock involves much work, and takes up space that might be better occupied. But a garden may be made very gay in summer with half-hardy plants raised from seed, and without keeping a single plant over the winter in the greenhouse. In seedlings there may be differences in habit and colour, but this should be no objection. Seedling Verbenas make a handsome bed, and usually do much better so grown than from cuttings.

Biennial plants.

Biennial plants are usually such as make their growth in one year and flower the next, but the line between biennial and annual is not a strict one, because in their native countries annual plants often spring up in one year, and flower the next. In countries with open winters and hot summers, annuals do so naturally, and begin to grow in

the first rains through the winter, and flower strongly the next year—these often being kinds sown in spring in gardens. Hollyhocks, Foxgloves, Chimney Campanula, and Sweet Williams come under this head, but in some cases early raising in spring gives us a chance of blooming some of them the same year as they are sown. In any case it is better for simplicity's sake to group all annual and biennial plants together, and with them the half-hardy plants raised from seed for use in the flower garden, as the work of raising all is, to a great extent, the same.

Annuals autumn-sown.

Annuals are a much greater aid in the flower garden than is generally acted upon. Often sown in a hurried way in the spring, they give a good effect, it is true, for those who depend much on annuals; but some of the very finest are best if sown in the early autumn, so that they can get a hold when there is still some warmth in the earth. We usually sow them the first week in September, and among the beautiful things that pass the winter with safety here and flower long in the spring are the Collinsias, *grandiflora* and *bicolor*, *Nemophylla insignis* and *maculata*, the beautiful Phacelia Campanularia. The blue Cornflower is much better and handsomer autumn-sown. And one may say generally of all annuals that naturally shed their seeds in summer and autumn, and in their own country gather strength during the winter, that they are able to throw up a fine bloom in the spring.

Some Annual and Biennial Plants, and Half-hardy Plants raised from Seed for the Flower Garden.

Acroclinium
Adlumia
Agathæa
Ageratum
Agrostemma
Alonsoa
Alyssum
Amaranthus
Amberboa
Ammobium
Anagallis
Antirrhinum
Arctotis
Argemone
Bartonia
Boerkhausia
Brachycome
Calandrinia
Calceolaria
Calendula
Calliopsis
Campanula
Cannabis
Catananche
Celosia
Celsia
Centaurea
Centranthus
Cheiranthus
China Aster
Chrysanthemum
Clarkia
Clintonia
Convolvulus
Coreopsis
Cosmidium
Cosmos
Datura
Delphinium
Dianthus
Didiscus
Digitalis
Erysimum
Erythræa
Eschscholtzia
Eucharidium
Eutoca
Gaillardia
Gilia
Glaucium
Godetia
Gypsophila
Hedysarum
Helichrysum
Heliophila
Hesperis
Hollyhock
Iberis
Impatiens
Ionopsidium
Ipomæa
Ipomopsis
Isotoma
Kaulfussia
Lasthenia
Lavatera
Leptosiphon
Leptosyne
Limnanthes
Linaria
Linum
Loasa
Lobelia
Lophospermum
Lupin
Maize
Malope
Malva
Martynia
Maurandya
Mesembryanthemum
Mignonette
Mimulus
Mirabilis
Myosotis
Nemesia
Nemophila
Nicotiana
Nierembergia
Nigella
Nolana
Nycterinia
Œnothera
Onopordon
Oxalis
Oxyura
Papaver
Pelargonium
Pentstemon
Petunia
Phacelia
Pharbitis
Phlox
Platystemon
Podolepis
Polygonum
Portulaca
Pyrethrum
Rhodanthe
Ricinus
Salpiglossis
Salvia
Saponaria
Scabious
Schizanthus
Schizopetalon
Senecio
Silene
Solanum
Sorghum
Specularia
Sphenogyne
Stenactis
Stocks
Sweet Peas
Sweet William
Tagetes
Tropæolum
Verbascum
Verbena
Viola
Virginia Stock
Viscaria
Waitzia
Whitlavia
Zea
Zeranthemum
Zinnia

CHAPTER XII.

FLOWERING SHRUBS AND TREES, AND THEIR ARTISTIC USE.

SPRING comes to us wreathed in Honeysuckle, and summer brings the Wild Rose and the May bloom, and these are but messengers of a host of lovely shrubs and low trees of the hills and plains of northern and temperate regions, and also of the high mountains of countries like India, where there are vast Alpine regions with shrubs as hardy as our own, as we see in the case of the white Clematis that covers many an English cottage wall with its fair white bloom. If we think of the pictures formed in thousands of places in England, Scotland, and Ireland by the May alone, we may get an idea of the precious beauty there is in the American, Asiatic, and European kinds, some of which flower later than our own and make the May bloom season longer. Nothing is lovelier among flowering trees than a group of the various Thorns, beautiful also in fruit, and the foliage of some kinds is finely coloured in autumn. The flowering Thorns are but one branch of the most

important order of flowering trees, embracing the Apples (a garden in their varied flowers alone); Pears, wild and cultivated; Crabs, pretty in bloom and bright in fruit; Quinces, Medlars, Snowy Mespilus, Almonds, Double Cherries, Japan Quinces, Plums (including Sloe and Bullace).

The Double Peaches are among the most precious of trees of this order, but for some reason we rarely see them in any but a miserable state in England. In France they are sometimes lovely, not only in the flower, but in the mass of colour from healthy growth. It may be that the failure of the shoots to ripen in our cool climate is owing to some weakness through grafting on a bad stock. There is such a great and noble variety among these trees that there is room for distinct effects. An excellent point in favour of trees like Crabs, Almonds, and Bird Cherries is that, in their maturity, they, in groups or single specimens, stand free on the turf—free, too, from all care; and it is easy to see how important this is for all who care for English tree-fringed lawns — a long way more beautiful than any other kind of tree garden.

It is not only the flowers on the trees we have to think of, but of their use also in the house—as cut flowers gathered when the buds are ready to open—gathering the branchlets and long twigs before the flowers are quite out and placing them in vases in rooms. In very bad weather this way will prolong the bloom for us, or even save it in the case of very hard frost, and in a cold spring it will advance the bloom a little, the warmth of the house giving a few days' gain in time of opening. As to the kinds of shrubs that may be cut for the house in this way there are many of the same race, from the Sloe to the beautiful kinds of Apple.

Cut flowers for house.

What beautiful groups of flowering evergreens we might plant in them! Mountain Laurels (Kalmia), Japan and American Andromeda, Azaleas, choice Evergreen Barberries, alpine Cotoneaster, Evergreen Daphne, Desfontainea, in the south; the taller hardy Heaths, Escallonia, Ledum, Alpine and wild forms of Rhododendron, Sweet Gale, Star bush, and various Laurustinus. Charming gardens might be made of such shrubs, not lumped together, but in open groups, with the more beautiful American hardy flowers between them, such as the Wood Lily and Mocassin flower, many rare Lilies, and bulbous flowers of all seasons. The light and shade and variety in such beds of choice evergreens and flowers mingled are charming, and the plan would be a permanent one as it would tend to abolish the never-ending digging in the flower garden. Beds of flowering shrubs in the flower garden are not always so well suited for small gardens;

Evergreens, Groups.

but in bold ones, now naked in winter, it would make them sightly even at that season, and much easier to deal with in early summer.

Rhododendrons.

Those of the hybrid sorts are too much used, and, as they are nearly always grafted, the common stock that bears them in the end kills the plant it should support, and so we too often see the pontic surviving. These shrubs are so easily raised by layering that there is no longer need to face death in the pontic stock as some nurseries have stocks of the plants in their natural roots, the only right way. Yet there are many beautiful things among these hybrids. The good colours are well worth picking out from them, and the aim of the planter should be to show the habit and form of the plant. This does not mean that they may not be grouped or massed just as before, but openings of all sizes should be left among them for light and shade, and for handsome herbaceous plants that die down in the winter, thus allowing the full light for half the year to evergreens.

In the south and west the various Arbutus are charming for lawns and ravines, and for sheltering the flower garden, as is also the sweet Bay Laurel, but the Common Cherry Laurel and the Portugal should not be planted near anything precious.

Hardy Azaleas.

These are, considering their great number and variety, perhaps the most precious flowering shrubs we have; they are fine in form of bush, even when they get little freedom, and superb in colour, the foliage in autumn, too, being rich in colour in sunny places. The Hydrangeas are noble plants in warm valleys, and on soils where they are not too often cut down by the winter; not only the common one of the markets, which, in soils where it turns blue, is so effective in the garden, but a variety of good kinds, among which should always be the oak-leaved Hydrangea, as old plants of it are so handsome. As these are plants that cannot be grown everywhere, this is a good reason why they should be made much of where the climate suits them. There are few garden sights more interesting than groups of Hydrangeas well grown and placed, and it is one we rarely see.

The Brooms have many effective plants, and none more so than the common and the Spanish Brooms, which should be massed on banks, or where they will come into the picture, and some of the smaller Brooms are excellent for rock gardens. The Furze in all its obtainable forms is just as precious, as it blooms so early, it will grow almost anywhere, and it brightens up a landscape as no other plant does. We have only to place it in any rough spots to enjoy it without care. Native shrubs should not be neglected; the wild single Guelder Rose is as pretty a shrub as any from across the sea, while

all the hardy kinds may give us good and bold effects grouped with or near such bushes as Deutzias, Weigelas, Mock Oranges—all plants of high value and much variety.

Hardy Heaths.

From an artistic point of view nothing is better than groups of our hardy Heaths in any open place where room can be found for them, including White Heather and all other strong varieties of heather, as well as all other kinds of hardy Heaths. After planting they give little trouble, and they are good in colour even in winter, being generally happiest out of the garden proper, where any other wild plants may be allowed to grow among them. No doubt, the choicest and smallest of these Heaths deserve careful garden culture, but for effect the forms of our common Heather, the Cornish and Irish Heaths, are the best, and in bold masses not primly kept, but, once well rooted, allowed to mingle with any pretty wild plants. We might even assist this idea by sowing or planting other things, such as Foxgloves, Hairbells, or the small Furze, among the Heaths. When Heaths are grown in this way their bloom is charming from the first peep of spring, when the little rosy Heath of the mountains of central Europe begins to open, till the autumn days, and even the mild winter ones, when the delicately tinted Portuguese Heath (E. codonodes) blooms in the south and west of England.

We take little notice of such minor things as the Fire-bush, so lovely in Cornwall, and pretty also in other seashore districts, as it may not be enjoyed in the country generally, and we also leave out some others, like the Witch and Japan Hazels, the Winter Sweet, and the Allspice bushes, which, though pretty seen near at hand, do not give us those definite effects in the garden landscape which it is well to seek if we wish to get out of the fatal jumble of the common shrubbery. The Escallonias, though very precious in seashore gardens and in the south on warm soils, are apt to go into mourning after hard winters elsewhere. So many of our island gardens are near the sea that we must not undervalue these shrubs, but a constant source of waste is the planting of things not really hardy in districts where they perish in hard winters, such as the Arbutus about London and in the Midlands. And, even where things seem hardy, some of them, like Fuchsias, never give the charming effects we get from them in the west of Ireland, in Wales, and in warm coast gardens, whatever care we take. Such facts should not discourage, because they only emphasise the lesson that the true way in a garden is for each to do what soil and climate allow of, and in that way we arrive at the most important artistic gain of all, *i.e.*, that each garden has its own distinct charms

A very lovely group is the Lilacs, much enriched of recent years

The White Indian Azalea (A. Indica) in a Wood at Coolhurst, Sussex.

by the introduction of new species and many charming varieties of the common old Lilac—lovely plants, worthy of the finest days of our English spring. Few of the Lilacs raised in France seem to thrive in our gardens, owing to grafting on the Privet, which often, after a year or two's poor bloom, kills the plant and begins to take care of itself. Lilacs, being hardy in all parts of Britain, deserve our best care, and should always be grouped together in the open sun. They should always be bought from nurserymen who raise them from layers or suckers in the good old way, and should be, once grown up, always kept a little open and free by simple pruning, so that we may get handsome trusses. With these, too, must be grouped such lovely things as the Snowdrop tree, the Stuartias, and Magnolias.

Lilacs.

The Magnolias have recently become more numerous, and it will be easy soon to have a Magnolia garden, at least in favoured places. The tree Magnolias should come among the taller flowering trees in the distant parts of our flower grove—Horse Chestnuts, Buckeyes, Tulip Trees, Laburnums, Catalpa, and Yellow Wood. The Alpine Laburnum, so very beautiful in bloom, becomes a tall, slender tree where not overcrowded, and the flowering Ash (Ornus) must not be forgotten among the taller flowering trees.

Magnolias.

Some shrubs of modest charm as to their flowers give very pretty effects in well-placed groups, such as the flowering Currant, Tamarix, and Ceanothus on walls. But none are more charming than the wild Roses in summer, the Sweet Brier being taken as representing our native wild Roses; the Glossy Rose (R. lucida), the American wild Roses; the many flowered Rose (Polyantha), and the Japanese (R. rugosa).

Wild Roses.

The Judas Tree is neglected in England, and rarely planted in an effective way. In the Parc Monceau in Paris there is a beautiful grove of it in which trees of various ages form one family party, so to say, showing some differences in colour and earliness. Such slight but often valuable differences arise when we raise trees from seed. It is curious that a tree so effective in bloom, and so distinct in habit as the Judas Tree is, should be so little planted with us, and, when planted, so often left to the scant mercy of the shrubbery. All such trees have their own ways and wants, and should not be jumbled up in the crowded way of planting.

Of Indian Azaleas in the open air Mr C. R. Scrase-Dickens writes: "The hardy Azaleas of the American races are very popular, but few know the value of the white Indian Azalea for the open

garden in the south of England." Few plants give so little trouble when once established, even though the late frosts may now and again spoil the beauty of the flowers. When planted out and left alone it is not much more than three or four feet in height, dense and spreading. The engraving shows a bush over ten feet across with a shadow thrown over the upper part by a tree of Magnolia which grows at the side. It gets shelter from cold winds and from too fierce a sun on the flowers. Any one who intends to

Azaleas and flowering shrubs.

Spiræa (Belmont, Carlow).

plant this Azalea should remember that it flowers naturally at a time when there may still be late frosts and cold winds hovering about, and that it would be a mistaken kindness to choose any place, such as under a south wall, which would tend to make the blossoms open earlier in the season. We have some plants under a north wall which do admirably, but they seem to like association with other things. The variety which does best here is the old typical white.

There are no plants so much neglected as flowering shrubs, and even when planted they are rarely well grown, owing to the "tra-

ditions" of what is called the shrubbery. The common way is to dig the shrubbery every winter, and this is often carried out as a matter of form while much harm is done by mutilating the roots of the shrubs.

The idea of the murderous common shrubbery is so rooted in the popular mind that it is almost hopeless to expect much change for the better. The true way is to depart wholly from it as a mass of *mixed* shrubs, for beautiful families should be grouped apart. Each family or plant should have a separate place, free from the all-devouring Privet and Laurel, and each part of the shrubbery should have its own character, which may easily be given to it by grouping instead of mixing, which ends in the starvation of the choice kinds. The shrubbery itself need no longer be a dark, dreary mass, but light and shade may play in it, its varied life be well shown, and the habits and forms of each thing may be seen. Shrubs of high quality or rare deserve to be well grown. Any one who thinks how much less trouble is given by hardy plants will not begrudge attention to outdoor things, and some may even consider a garden of beautiful shrubs as a conservatory in the open air, no kind of flower gardening being more delightful or enduring.

Whether they are all distinct species or merely varieties it matters little, the great beauty of the trees being undoubted, not only in their flowers, but in their fruits, some of which are edible. Being natives of countries colder than ours, including much of Canada and North-Eastern America, they are as hardy as any of our native trees, and well fitted for planting in any soil or position.

Thorns and their future.

Here, there was a slope above the moat cottage too steep for plough or spade, and many years ago I planted most of the kinds that were obtainable at the time, and while some did very well, half of them failed owing to their being grafted on the wild Quick. The latter being common in every nursery, opportunity is taken to graft exotic kinds upon it, with the result that the native kind will kill the foreigner.

The important thing is that they should be raised from seed, the natural method of increase, and as the shrubs are as free to fruit as to flower, there should be no difficulty in obtaining plenty of seed.

Apart from the beauty of these trees, they interested me for their value in making very good fences. We all know the use of our native Thorn for this purpose, and some of these foreign kinds might give a better fence than any contrivance of barbed wire.

Good fences.

A fault of the native Thorn is the constant labour it requires to

keep it in shape, and some of the wild species might give a better fence. This is important, as the beauty of England is in the way of being lost through the use of iron fences. Some estates are quite disfigured for landscape beauty by the iron fence, costly and not so enduring. The only fence for those who wish to preserve the beauty of our country is a "live" one of Thorn.

The Thorn best for this purpose is the Cockspur. It makes a very good fence for woods where frequent trimming is not needed, being well armed with spines, and the leaves turn a fine brown in autumn.

Sixteenth Century House, Gloucestershire. Gardens at back.

A wood of Cedars of Lebanon which I planted for a friend some years ago was fenced with iron: during a recent visit I saw the fence smashed to pieces by the stock. Such fences are not without danger to animals, whereas a good live fence is wholly free. No doubt such a fence takes time to grow, but by planting seedlings in the full sun rapid growth is made, and stout Quick might even be planted within the iron fence, that being eventually removed. The fairest landscapes are destroyed if one has to look at them through an iron grille.

To enjoy their beauty in a mature state, the best places for these hardy Thorns are the fringes of copses and woods, sandy banks or knolls and rocky places, and they should be grouped, not dotted about. They are vigorous enough to battle with weeds, and can be trusted to take care of themselves.

There is evidence of their picturesque form, endurance and beauty of flower and fruit in some of our parks like Shrubland, and in botanic gardens trees raised from seeds before the art of grafting was used in too many ways.

Some Flowering Trees and Shrubs Hardy in British Gardens.

Abelia
Æsculus
Akebia
Amelanchier
Amygdalus
Andromeda
Aralia
Arbutus
Arctostaphylos
Asimina
Azalea
Azara
Berberidopsis
Berberis
Bignonia
Buddleia
Calycanthus
Camellia
Caragana
Catalpa
Ceanothus
Cerasus
Cercis
Chimonanthus
Chionanthus
Cladrastis
Clematis
Clethra
Colletia
Colutea
Comptonia
Cornus
Corylopsis
Cotoneaster
Cratægus
Cydonia
Cytisus
Daphne
Desfontainea
Desmodium
Deutzia
Edwardsia
Embothrium
Erica
Escallonia
Eucryphia
Euonymus
Exochorda
Fabiana
Forsythia
Fothergilla
Garrya
Gaultheria
Genista
Gleditschia
Halesia
Hamamelis
Hibiscus
Hydrangea
Hypericum
Illicium
Indigofera
Jasminum
Kalmia
Kerria
Kœlreuteria
Laburnum
Ledum
Leiophyllum
Lespedeza
Leycesteria
Liriodendron
Lonicera
Lupinus
Magnolia
Mahonia
Malus
Mespilus
Olearia
Ononis
Ornus
Ozothamnus
Paulownia
Pavia
Pernettya
Philadelphus
Phlomis
Piptanthus
Prunus
Pterostyrax
Pyrus
Raphiolepis
Rhododendron
Rhodora
Rhodotypos
Ribes
Robinia
Rosa
Rubus
Sambucus
Sophora
Spartium
Spiræa
Staphylea
Stauntonia
Stuartia
Styrax
Syringa
Tamarix
Ulex
Veronica
Viburnum
Virgilia
Weigela
Wistaria
Xanthoceras

*** *Some of the evergreens, though thriving long in the southern and shore lands, may perish in severe winters in cold inland districts.*

CHAPTER XIII.

CLIMBERS AND THEIR ARTISTIC USE.

THE splendid squadrons of the Pine, with crests proud in Alpine storm and massed in serried armies along the northern mountains—the Oak kings of a thousand winters in the forest plain are lovely gifts of the earth mother, but more precious still to the gardener are the most fragile of all woody things that garland bush and tree with beautiful forms and blossoms, like Clematis, Jasmine, and Honeysuckle, and the many lace-workers of the woods and brakes. It is delightful to be able to turn our often ugly inheritance from the builder almost into gardens by the aid of these, from great yellow Roses to Ivy in many lovely forms; but it is well to take a wider view of these climbing and rambling bushes and their places in the garden and in the pleasure ground. It is for our own convenience we go through the labour of nailing them to walls, and though it is a charming and necessary way of growing them it is well to remember that many climbers may be grown in beautiful ways without such laborious training. The tendency to over-pruning of the climbers on walls ends often in a kind of crucifixion, and the more freely things are trained the better. Proof of this is in the handsome masses of climbers on the high walls of the Trinity College Gardens at Dublin and in many private places where climbers have been liberally and well planted on walls.

But it should never be forgotten that many of these plants will grow by themselves, like the Honeysuckles, which, while pleasant to

see on walls, are not less so on banks, or even on the level ground. Pretty fences and dividing screens may also be easily formed by hardy climbers.

Ivies.

The Ivy of our northern woods has broken into a number of beautiful varieties often distinct in form and even in colour; they deserve far more attention for evergreen bowers, evergreen fences, and dividing lines, apart from their growth on walls and trees. The bush forms of these may make broken hedge-like garlands 2 feet to 3 feet high round little isolated flower gardens. But the Ivy is a destroyer of houses, and ought never to be planted near one. There are ways of enjoying it where it can do no harm—in woods or rocks and as a screen, where an evergreen one is sought. Almost equally beautiful plants in form of leaf are the Green Briers (Smilax), some of which are hardy in England, but seen in few gardens, and rarely treated in an artistic way, though excellent for walls and rocks.

Of the beauty of the Jasmine of all climbers there is least need to speak, yet how rarely one sees the old white Jasmine made good use of in large gardens. It should be in bold wreaths or masses where it thrives, and so also the winter Jasmine, which is a precious thing for our country, should not be put in as a plant or two in bad conditions, but treated as a fine distinct thing in masses round cottages and outhouses. The finest of hardy climbers, the Wistaria, is much more frequently and rightly planted in France than in our gardens, though it thrives in the Thames valley as well as in the Seine valley. It should be, in addition to its use on walls and houses, made into bold, covered ways and bowers and trained up trees.

Climbers on trees.

It is not only that stout climbers are more beautiful and natural, and show their form better growing amongst trees, but it is the best way that many of them can be grown with safety owing to their vigour. The way the common Ivy wreaths the trees in rich woods, and the wild Clematis throws ropes up trees on the chalk hills, shows what the larger hardy climbers do over trees or rough or open copses, or even now and then in hedgerows. Some vigorous climbers would in time ascend the tallest trees, and there is nothing more beautiful than a veil of Clematis montana running over a tall tree. Besides the well-known climbers, there are species of Clematis which have never come into general cultivation, but which are beautiful for such uses, though not all showy. The same may be said of the Honeysuckles, wild Vines, and various other families with which much of the northern tree and shrub world is garlanded. Occasionally one sees a climbing Rose rambling over a tree, and perhaps among our

garden pictures nothing is more lovely than such a Rose when in flower. By a selection of the hardiest of climbing Roses very beautiful pictures might be formed in our pleasure grounds and

Pergola with Japanese Wistaria, Gravetye, Sussex.

plantations, and we might often see as the result of design what is now mainly an accident, as a number of wild Roses grow "freely" among trees and large shrubs.

A home for these is often found on walls, and in our country some variety of wall surface is a great gain to botanic gardens and private gardens like Offington, in which a great variety of shrubs from all countries is grown. In the milder districts of the country and in favoured spots round the coast some of the finest exotics, such as Lapageria, and some greenhouse plants of great beauty, like Clianthus, may be grown on walls in the open air. Some of the fine plants of Chili also may be grown on walls of various aspects. Many who have visited our best gardens will probably have stored away in their memories some of the pictures they have seen given by noble wall plants well grown in this way —as, for example, the New Zealand Edwardsia at Linton, so fine in form and colour, and the handsome Fremontia. Hard winters settle the fate of many beautiful things among these, but, happily, some of the loveliest things are hardy, like the Winter Sweet, Bignonia, and Magnolia.

Climbers of classic beauty.

It may be noted here that among the unfortunate attempts of certain architects who designed gardens to get rid of the gardener and his troublesome plants were instructions that no climbers were to be allowed on walls. There was not a single spray of any climber allowed to grow on the house or extensive terrace walls at Shrubland, some years ago, as if in a garden death were better than life.

Apart from the vigorous climbers that we may trust in shrubberies, woods, and on rough banks, and which, when fairly started, take care of themselves, there are fragile things which deserve to be used in rather a new way as far as most gardens are concerned, namely, for throwing a delicate lacework of flowers over the evergreen and other choice shrubs grown in our gardens —Rhododendron, Kalmia, Azalea, and even taller shrubs. A group of Hollies will not look any the worse for wreaths of fragrant Clematis in autumn. Often stiff, unbroken masses of Rhododendrons and evergreen flowering shrubs will be more varied if delicate flakes of Clematis (white, lavender, or claret-red) or the bright arrows of the Flame Nasturtium come among them here and there in autumn. The great showy hybrid Clematises of our gardens are not so good for this use as the more elegant wild Clematises of North America, Europe, and North Africa.

Fragile climbers on shrubs.

The old Climbers and Garland Roses were almost too vigorous for the garden, and their bloom did not last long enough to justify their getting a place there; but now, with the great climbing Tea Roses

A Pergola with stone pillars. (From a water-colour drawing by Mrs Mary Stevens.)

we have for the southern parts of these islands, we may count on a bloom for months. We have in these Roses, where they thrive the best, the most precious of all ornaments for walls of houses, trellis work, pergolas. In southern parts of the country we even get fine results from these Roses on the north side of walls, where some Roses flower better than on the south side. Also, we can grow them in the open on trellises or away from walls, but in the northern parts of the country, where these great climbing Tea Roses may not thrive so well, walls come in to help us more and more by their shelter and warmth.

Climbing Roses.

Apart from these great Roses of garden origin, which will long be among the most precious, some Wild Roses are of the highest importance in warm districts and good soils, particularly the Indian R. Brunonis and the many-flowered Roses (R. polyantha) of Japan; but in the presence of the need of so much wall space for the garden Roses these Wild Roses will usually be best in the shrubbery or some place apart, where they may be let alone, and no good can arise from choice, garden ground being given to Roses like R. polyantha which are even more vigorous than our own wild Dog Rose.

On walls, in southern parts, never forget the noble Macartney Rose, it thrives on walls and should always be raised from suckers of the natural root.

Going back some thousands of years to the earliest sculptured remains of some of the oldest peoples, we see evidence that the Grape Vine was in common use, and it is, no doubt, much older than the monuments of Assyria. Among the Kabyle villages of North Africa I passed many Vines of great age trailing over very old Olive trees in the little orchard fields. In such countries there was the value of the fruit, but even in ours, where the Grape ripens rarely out of doors, the charm of the plant is so great that we see many cottages in Surrey and Norfolk set deep in Vine leaves. The Grape Vine, however, is but one of a large family, and, though we may not see in our country its garlands from tree to tree purple with fruit, we may see much of its fine forms of leaf. The wild Vines are too vigorous for use on walls, though excellent for banks and trees and for any place outside the flower garden. I have seen them clambering up forest trees, spreading into masses of fine foliage on the ground, and sending out long arms in search of the nearest trees—strong and handsome climbers, hardy, vigorous, and soon covering dry banks, rocks, and trees.

Vines for their beauty of form.

To the Vines (Vitis) have now been joined by the botanists Virginian Creepers (Ampelopsis), and between the two groups it need not be said what noble things they offer for garlanding trees, walls,

bowers, rocks, and banks. It cannot be said that we neglect these Virginian and Japanese creepers, but the Vines are so far seldom well used with us, although easy of cultivation.

Pergolas.

There are seasons when shaded walks may be enjoyed, and numbers of free-growing, climbing plants give an abundant and lovely choice of living drapery for them, Aristolochia, Wistaria, Virginian Creeper, rambling Roses, Honeysuckles, Jasmines, and the free Clematises doing well over such. In Italy and warm countries one often sees in gardens the pergola—as the creeper-shaded walk is called—serving the twofold purpose of supporting Grape Vines and giving pleasant coolness during the summer heat. As a rule, these pergolas are rude trellis-work structures of wood, sometimes supported by stone posts where these are at hand. In the gardens in the neighbourhood of Rome, Naples, and Florence there are beautiful examples of the pergola—stately structures, the supports of which are massive columns of stone covered and festooned with Banksian Roses, Wistaria, Periploca, Clematises, Honeysuckles, Passion Flowers, scarlet Trumpet Flowers, and other climbers which form cool retreats in the hot days. But such pergolas seldom occurred outside the gardens of the great villas, and near humbler dwellings the pergola was usually a simple structure made for the purpose of supporting the Grape Vine.

These creeper-clad covered ways should usually lead to somewhere and be over a frequented walk, and should not cut off any line of view nor be placed near big trees. A simple structure is the best. The supports, failing the Italian way of making posts of stone—also seen, by the way, in gate-posts in Northern England—should be Oak tree stems, about 9 inches in diameter, let into the ground about 2 feet—the better if on a bed of concrete. The posts must be connected and firmly secured to each other by long pieces along the sides, while the top may be formed of smaller pieces to make a firm structure. On no account let the "rustic" carpenter begin to adorn it with the fantastic branchings he is so fond of. Some experience with wooden supports makes me stick to brick pillars as the best support where stone is not near. Over narrow ways one may use a 9-inch brick pillar—on airy pergolas a 14-inch pillar is best.

Trees for climbers.

Instead of trusting to wire and ugly posts or the many artificial ways for supporting climbers, why should we not do as the Italians and people of South Europe do, use living trees to carry the Vine or climber. Weeping trees of graceful leaf and form might be used in this way with fine effect. Abroad they take for this purpose any kind of tree which happens to be near and keep it within bounds, and

those who know our garden flora may select trees which, while beautiful themselves, will not be much trouble to keep in bounds, like the weeping Cherry, weeping Aspen, some Willows even, and any light leaved weeping tree would be charming for its own sake as well as for what it might carry. Some of them might even be beautiful in flower, and there would be no trouble in getting creepers to run over them.

Light arches over walks.

When a quiet walk leads from one part of the garden to another, and that walk is spanned at intervals with slender light arches clothed with Honeysuckle, Clematis, or Jasmine, it gives an added grace to the walk. This also is a delightful way of framing, so to say, a flower border, the light arches springing up from the line of the trellis, which should be used to cut off the borders from the kitchen garden.

Annual climbers.

However rich we may be in perennial and shrubby climbers, we must not forget the climbing things among annual and like plants to help us, especially for the smaller class of gardens and those in which we depend more on annual flowers. Hedges of Sweet Peas there are few things to equal; the fragile annual Convolvulus in many colours are pretty for low trellises, the vigorous, herbaceous Bindweeds for rough places outside the flower garden. Most showy of all annual climbers are the many Gourds, which, treated in a bold way, give fine effects when trained over outhouses, sheds, or on strong stakes as columns.

Covered ways of fruit trees.

Although in our gardens the shaded walk is not so necessary as it is in Italy and Southern France, in hot seasons shade is welcome in Britain; and, as in many gardens we have four times as many walks as are needed, there is plenty of room for covering some of them with fruit trees which would give us flowers in spring, fruit in autumn, and light shade. The very substance of which walks are made is often good for fruit, and those who know the Apricot district of Oxfordshire and the neighbouring counties may see how well fruit trees do in hard walks. It is not only in kitchen and fruit gardens that their shade might be welcome, but in flower gardens too, if we ever get out of the common notion of a flower garden which insists on everything being seen at one glance.

Plashed alleys.

In some old gardens there was a way of "plashing" trees over walks—trees like the Lime, which grew so vigorously that they had to be cut back with an equal vigour, this leading in the end to ugliness in the excessive mutilation of the trees. One result of the fre-

quent cutting was a vigorous summer growth of shoots, which cast a dense shade and dripped in wet weather. The purpose of such walks would be well fulfilled by training fruit trees over them, as they are trees which much more readily submit to training and give the light and airy shade which is best in our country. The fruit trellis, whatever it is formed of, need not be confined to fruit trees only, but here and there wreaths of Clematis or other elegant climbers might vary the lines.

Those who live in sheltered valleys on warm soils, or among pleasant hills above the line of hard frosts, may be so rich in evergreens that they will keep their walls for the fairest of true climbers. But in cold, exposed, and inland parts people are often glad to have good evergreens on walls, even bushes not naturally climbers in habit, such as the choicer evergreen Barberries, and Camellias on the north sides of walls. The Laurustinus, too, is charming on many cottage walls in winter, and may escape there when it would suffer in the open; the Myrtle is happy on walls in southern districts, and even the Poet's Laurel may be glad of the shelter of a wall in the north. The evergreen Magnolia, which in warmer Europe is a standard tree, in our country must usually be grown on walls, even in the south, and there is no finer sight than a good tree of Magnolia on a house. The beautiful Ceanothus of the Californian hills often keep company with these evergreens on walls; but even in the warmer soils of the home counties they are tender, and their delicate sprays of flowers are much less frequently seen with us than in France, although we cannot resist trying them on sunny walls, and on chalky and sandy soils they have better chances.

Evergreens as climbers.

In clearing up this question, the first thing to do is to state a few facts about which there can be no dispute among any who are interested. The first is the extraordinary beauty of the plants. No conservatory in Europe shelters any plant so graceful in habit or so fine in colour of flowers. Added to this is the precious quality of hardiness and power to resist the rainstorms of our isles. I have grown every obtainable kind in various positions, and never lost a plant from cold. When day after day in July my Roses became bags of ugly mould, and even native plants were sickened by the rain day and night, the large Clematises, on their natural roots, suffered not the slightest injury.

Loss of the Clematis in gardens.

The next fact, of which there can be no doubt, is that the gardens of Britain and of France have been robbed of the most beautiful race of climbers of the northern world. Large gardens, with every ad-

vantage of site, soil, and air, are quite bare of them. It is not only in our country this loss has arisen through mistaken ways of increasing the plants. It is so everywhere in France, where we may see in the great nurseries at Orleans and Angers masses of the finest Clematises huddled together in pots, but never a plant on its natural roots. If one asks any question as to the diseases of the plants, only guesses are given. The loss to the trade is great. To suppose that clever propagators could not increase these hardy climbers in the natural way is absurd. The final test of the practice is not in the nursery, but in the grounds of the buyers of the plants. Any practice of increase which drives plants out of general cultivation is a loss to the trade as well as to the planter. From experiments carried on for many years here I have proved that the cause of the loss is the practice of grafting these plants.

The loss.

The nature of the Clematis in the wild state is to run over bushes and copses, as one may see on the shores of Northern Africa. So if we plant beneath a bush a little shade is afforded, and though the growth is not so free as when the plants are set apart, the life of the plant is longer and the effect is more beautiful. Lastly, more dangerous than eelworms and fungi are slugs, which bark the fragile stems as far up as they can get, and that means the death of the shoot in summer, but not the death of the plant if on its own roots. Lawn-mower, hoe, or rake may smash the delicate stems if the plants are set out singly, especially if grafted, as the union of the choice variety and the wild stock used is often fragile, whereas the plant on its natural roots never is. On hot, sunny days partial loss occurs by shoots dying off, but when on its own roots we do not lose the plant.

Grafting not the only cause.

The rest is the story of my planting and success here by following a completely different way from the common one. It at first struck me that the grafting of plants of different species was not always justified in results. In the nursery practice the rule is to graft the Clematis of Japan on the toughest climber of our chalk hills—a wholly different plant and from a different country—and, therefore, there might be a cause of death through the sap arising at different times in the two plants in the spring of the year. The next thing was to test the matter by planting—not an easy matter, as in every nursery there were only the grafted plants, and, like so many others, I lost many. At the same time, there was evidence in many places that the Indian Mountain Clematis and other wild kinds, which are grown on their natural roots, are vigorous climbers. The stool ground in which the old nurserymen layered their plants was done away with

The test.

in favour of the new way of buying stocks by the thousand with no thought as to the result to the planter.

In only one nursery in France—that of the late Ferdinand Jamin, of Bourg-la-Reine, Seine, a much-trusted French nurseryman—did I find the stools of Clematis, the little plants simply layered into pots set around the old plants in the open air. I had many of these, and never failed with them.

I have planted the very finest kinds in every sort of position, some in the hedgerow, round an orchard, in open ground, and in close shade of trees and shrubs, and have had success in all. With the plants from cuttings, layers, or seedlings there is no risk. Is there any sound reason for grafting a plant so easy to raise from layers as the Clematis? There is none, either as to tenderness or difficulty of increase.

Ungrafted plants in every sort of position.

It was thought that calcareous soil was a need, no doubt arising from the fact that our native species abounds on the chalk hills, but for the Japanese Clematis chalk is not needed. The plants may grow in calcareous soil, but so they do in sandy loam. If anything is helpful in planting a Clematis it is plenty of sharp sand. We never give either mulch or special fertiliser—none is needed.

Soil.

Having proved beyond a doubt the vigour and beauty of naturally-grown plants, my next step was to bring them into the flower garden—their right place, though from gardens they are generally excluded. So they were planted on tripods, pergola, wall, and Oak fence as a background to the mixed border, and on almost every surface at hand. And all these places they adorn from early summer to mid-autumn.

The Clematis in the flower garden.

Miss Willmott tells me she raises Clematis easily from cuttings. From seed of the nobler kinds it is well to raise varieties of merit, though the seed is slow to germinate. The wild species come freely from seed. I sowed the Virgin's Bower (C. Viticella) out of hand when forming a new live fence around an orchard, and there it has been ever since, throwing a lace-work of delicate form and flowers over the fence.

There is no more need to graft a Clematis than to graft a Raspberry. It is a short-sighted practice which has driven the loveliest of all hardy climbers from the gardens of Europe. On the contrary, both as to root and branch, they are among the most vigorous of hardy climbers. In the loss of Rhododendrons by thousands on the ponticum type on which they were grafted, the planter has the satisfaction of seeing the bloom of his favourite for a few years before

it gives up the ghost. In the Clematis even this poor satisfaction is denied him, and in large gardens, with every advantage of soil and climate, they are often unseen. The idea that grafting is a cheaper way of increase is not true. Layers in March give strong plants for full planting in October—a more rapid way to increase.

Some climbing and wall plants.

There is scarcely any limit to the different uses that plants of a climbing or rambling habit may be put to, for many of them are extremely beautiful when employed for the draping of arbours, pergolas, or even living trees, while for hiding unsightly fences or clothing sloping banks, the more vigorous kinds are well adapted. For draping buildings or furnishing walls there is a great variety of plants, either quite hardy or sufficiently tender to need the protection of a wall in order to pass through an ordinary winter without much injury. The majority of those enumerated below are hardy enough to succeed as wall plants in any part of England, while a few are adapted only for particularly mild districts.

Those plants marked with an asterisk are either half-hardy or require some slight protection in cold districts or special care in some cases.

Abelia
Abutilon
Actinidia
Adlumia
Akebia
* Aloysia
Apios
Aristolochia
Azara
* Berberidopsis
Berberis
Bignonia
Buddleia
Calystegia
Camellia
* Carpenteria
Ceanothus
Celastrus
Chimonanthus
Choisya
Clematis
Clianthus
Cocculus
Convolvulus
Cotoneaster
Cratægus
Cydonia
Desfontainea
Eccremocarpus
Edwardsia
* Embothrium
Escallonia
Eucryphia
Euonymus
Exochorda
Exogonum
Forsythia
Fremontia
Fuchsia
Garrya
Grevillea
Hedera
Illicium
Indigofera
Jasminum
Kerria
* Lapageria
* Lardizabala
Leptospermum
Lonicera
Lophospermum
Lycium
Magnolia
* Mandevilla
Maurandya
Menispermum
* Mitraria
Muhlenbeckia
Myrtus
Paliurus
* Passiflora
Periploca
Physianthus
Piptanthus
* Pittosporum
Pueraria
* Punica
Rhus
Ribes
Roses
Rubus
Schizandra
Schizophragma
Smilax
Solanum
* Sollya
Stauntonia
Stuartia
* Thunbergia
Tropæolum
Vitis (now including Ampelopsis)
Wistaria
Xanthoceras

CHAPTER XIV.

ALPINE FLOWER, ROCK, AND WALL GARDENS.

ALPINE plants grow naturally on high mountains, whether they spring from sub-tropical plains or green northern pastures. Above the cultivated land these flowers begin to occur on moorland and in the fringes of the hill woods; they are seen in multitudes in the broad pastures with which many mountains are robed, enamelling their green, and where neither grass nor tall herbs exist; where mountains are crumbled into slopes of shattered rock by the contending forces of heat and cold; even there, amidst the glaciers, they spring from the ruined ground, as if the earth-mother had sent up her loveliest children to plead with the spirits of destruction.

Alpine plants fringe the fields of snow and ice of the mountains, and at such elevations often have scarcely time to flower before they are again buried deep in snow. Enormous areas of the earth, inhabited by Alpine plants, are every year covered by a deep bed of snow, and where tree or shrub cannot live from the intense cold a deep mass of down-like snow falls upon Alpine plants, like a great cloud-borne quilt, under which they rest safe from alternations of frost and biting winds with moist and spring-like days as in our green winters.

But these conditions are not always essential for their growth, in a cool, northern country like ours. The reason that Alpine plants abound in high regions is because no taller vegetation can exist

there; were these places inhabited by trees and shrubs, we should find fewer Alpine plants among them; on the other hand, were no stronger vegetation found at a lower elevation, these plants would often appear there. Also, as there are few hard and fast lines in Nature, many plants found on the high Alps are also met with in rocky or barish ground at much lower elevations. Gentiana verna, for example, often flowers very late in summer when the snow thaws on a very high mountain; yet it is also found on much lower mountains, and occurs in England and Ireland. In the close struggle upon the plains and low, tree-clad hills, the smaller species are often overrun by trees, trailers, bushes, and vigorous herbs, but, where in far northern and high mountain regions these fail from the earth, the lovely Alpine flowers prevail.

In the culture of these plants, the first thing to be remembered is that much difference exists among them as regards size and vigour. We have, on the one hand, a number of plants that merely require to be sown or planted in the roughest way to flourish—Arabis and Aubrietia, for example; and, on the other, there are some kinds, like Gentians and the Primulas of the high Alps, which are rarely seen in good health in gardens, and it is as to these that advice is chiefly required. Nearly all the misfortunes which these little plants have met with in our gardens are due to a false conception of what a rock garden ought to be, and of what the Alpine plant requires. It is too often thought that they will do best if merely raised on tiny heaps of stones and brick rubbish, such as we frequently see dignified with the name of "rockwork." Mountains are often "bare," and cliffs devoid of soil; but we must not suppose that the choice jewellery of plant-life scattered over the ribs of the mountain lives upon little more than the air and the melting snow. Where else can we find such a depth of stony soil as on the ridges of shattered stone and grit flanking some great glacier, stained with tufts of crimson Rockfoil? Can we gauge the depth of that chink from which peep tufts of the beautiful little Androsace helvetica, which for ages has gathered the crumbling grit, into which the roots enter so far that we cannot dig them out? And if we find plants growing from mere cracks without soil, even then the roots simply search farther into the heart of the flaky rock, so that they are safer from drought than on the level ground.

Natural conditions.

We meet on the Alps plants not more than an inch high firmly rooted in crevices of slaty rock, and by knocking away the sides from bits of projecting rock, and laying the roots quite bare, we may find them radiating in all directions against a flat rock, some of the largest perhaps more than a yard long. Even smaller plants descend quite as deep,

though it is rare to find the texture and position of the rock such as will admit of tracing them. On level or sloping spots of ground in the Alps the earth is of great depth, and, if it is not all earth in the common sense of the word, it is more suitable to the plants than what we commonly understand by that term. Stones of all sizes broken up with the soil, sand, and grit prevent evaporation; the roots lap round them, follow them down, and in such positions they never suffer from want of moisture. It must be remembered that the continual degradation of the rocks effected by frost, snow, and heavy rains in summer serves to "earth up," so to speak, many alpine plants.

Position of rock garden.

The part of the gardens around the rock garden should be picturesque, and, in any case, be a quiet, airy spot with as few jarring points as may be. No tree should be in the rock garden; hence a site should not be selected where it would be necessary to remove favourite trees. The roots of trees would find their way into the masses of good soil for the alpine flowers, and soon exhaust them. Besides, as these flowers are usually found on treeless wastes, it is best not to place them in shaded places.

As regards the stone to be used, sandstone or millstone grit would perhaps be the best; but it is seldom that a choice can be made, and almost any kind of stone will do, from Kentish rag to limestone. Soft and slaty kinds and others liable to crumble away should be avoided, as also should magnesian limestone. The stone of the neighbourhood should be adopted, for economy's sake, if for no other reason. Wherever the natural rock crops out, it is sheer waste to create artificial rockwork instead of embellishing that which naturally occurs. In many cases nothing would be necessary but to clear the ground, and add here and there a few loads of good soil with broken stones to prevent evaporation, the natural crevices and crests being planted where possible. Cliffs or banks of chalk, as well as all kinds of rock, should be taken advantage of in this way; many plants, like the dwarf Hairbells and Rock Roses, thrive in such places.

Walks.

No walk with regularly trimmed edges should come near the rock garden. This need not prevent the presence of good walks through or near it, as by allowing the edges of the walk to be broken and stony, and by encouraging Stonecrops, Rockfoils, and other little plants to crawl into the walk at will, a pretty margin will result. There is no surface of this kind that may not be thus adorned. Violets, Ferns, Forget-me-nots, will do in the shadier parts, and the Stonecrops and many others will thrive in the full sun. The whole of the surface of the alpine garden should be covered with plants as

far as possible, except a few projecting points. In moist districts, Erinus and the Balearic Sandwort will grow on the face of the rocks; and even upright faces of rock will grow a variety of plants. Regular steps should never be in or near the rock garden. Steps may be made quite picturesque, and even beautiful, with Violets and other small plants jutting from every crevice; and no cement should be used.

In cases where the simplest type of rock garden only is attempted, and where there are no steps or rude walks in the rock garden, the very fringes of the gravel walks may be graced by such plants as the dwarfer Stonecrops. The alpine Toadflax is never more beautiful than when self-sown in a gravel walk. A rock garden so made that its miniature cliffs overhang is useless for alpine vegetation, and all but such wall-loving plants a Corydalis lutea soon die on it.

Soil.

The great majority of alpine plants thrive best in deep soil. In it they can root deeply, and when once rooted they will not suffer from drought, from which they would quickly perish if planted in the usual way. Three feet deep is not too much for most kinds, and in nearly all cases it is a good plan to have plenty of broken sandstone or grit mixed with the soil. Any free loam, with plenty of sand or broken grit, will suit most alpine plants. But peat is required by some, as, for example, various small and brilliant rock-plants like the Menziesia, Trillium, Cypripedium, Spigelia, and a number of other mountain and bog-plants. Though the body of the soil may be of loam, it is well to have a few masses of peat here and there. This is better than forming all the ground of good loam, and then digging holes for the reception of small masses of peat. The soil of some portions might also be chalky or calcareous, for the sake of plants that are known to thrive best on such formations, like the Milkworts, the Bee Orchis, and Rhododendron Chamæcistus. Any other varieties of soil required by particular kinds can be given as they are planted.

It is not well to associate a small lakelet or pond with the rock garden, as is frequently done. If a picturesque piece of water can be seen from the rock garden, well and good; but water should not, as a rule, be closely associated with it. In places of limited extent, water should not be thought of.

In the planting of every kind of rock garden, it should be remembered that *all* the surface should be planted. Not alone on slopes, or favourable ledges, or chinks, should we see this exquisite plant-life, as many rare mountain species will thrive on the less trodden parts of footways; others, like the two-flowered Violet, seem to thrive best in the fissures between steps; many dwarf succulents delight in gravel and the hardest soil.

In cultivating the very rarest and smallest alpine plants, the stony, or partially stony, surface is to be preferred. Full exposure is necessary for very minute plants, and stones are useful in preventing evaporation and protecting them in other ways.

Few have much idea of the number of alpine plants that may be grown on fully exposed ordinary ground. But some kinds require care, and there are usually new kinds coming in, which, even if vigorous, should be kept apart for a time. Therefore, where the culture of alpine plants is entered into with zest, there ought to be a sort of nursery spot on which to grow the most delicate and rare kinds. It should be fully exposed, and sufficiently elevated to secure perfect drainage.

Misplaced artificial rock.

Artificial rock is formed now and then in districts where the natural rock is beautiful, as in the country round Tunbridge Wells. Why anybody should bring the artificial rockmaker into a garden or park where there is already fine natural beautiful rock it is not easy to see. Also, in certain districts, it is a mistake to place this artificial rock under conditions where rock of any kind does not occur in nature. It would be much better, as far as alpine and rock plants are concerned, to dispense with much of this ugly artificial rockwork, and take advantage of the fact that many of these plants grow perfectly well on raised borders and on fully exposed low banks.

Alpine plants grouped.

Many vigorous alpine flowers will do perfectly well on level ground in our cool climate, if they are not overrun by coarser plants. Where there are natural rocks or good artificial ones it is best to plant them properly; but people who are particular would often be better without artificial "rockwork" if they wished to grow these plants in simpler ways. There is not the slightest occasion to have what is called "rockwork" for these flowers. I do not speak only of things like the beautiful Gentianella, which for many years has been grown in our gardens, but of the Rockfoils, the Stonecrops, and the true alpine plants in great numbers.

The next point is the great superiority of natural grouping over the botanical or labelled style of little single specimens of a great number of plants. In a few yards of border, in the ordinary way, there would be fifty or more kinds, but nothing pretty for those who have ever seen the beautiful mountain gardens. Many rightly contend that, in a sense, Nature includes all, and that therefore the term "natural" may be misapplied, but it is a perfectly just one when used in the sense of Nature's way of arranging flowers as opposed to the lines, circles, and other set patterns so commonly

followed by man. Through bold and natural grouping we may get fine colour without a trace of formality.

Those who have observed alpine plants must have noticed in what arid places many flourish, and what fine plants may spring from a chink in a boulder. They are often stunted and small in such crevices, but longer-lived than when growing upon the ground. Now, numbers of alpine plants perish if planted in the ordinary soil of our gardens from over-moisture and want of rest in winter. But if placed where their roots are dry in winter, they may be kept in health. Many plants from countries a little farther south than our own, and from alpine regions, will find on walls, rocks, and ruins that dwarf, sturdy growth which makes them at home in our climate. There are many alpine plants now cultivated with difficulty in frames that may be grown on walls with ease.

Wall gardens.

In garden formation, especially in sloping or diversified ground, what is called a dry wall is often useful, and may answer the purpose of supporting a bank or dividing off a garden quite as well as masonry. Where the stones can be got easily, men used to the work will often make gently "battered" walls which, while banks, will make homes for many plants which would not live one winter on a level surface in the same place. In my own garden I built one such wall with large blocks of sandstone laid on their natural "bed," the front of the stones almost as rough as they come out, and chopped nearly level between, so that they lie firm and well. No mortar was used, and as each stone was laid slender rooted alpine and rock plants were placed along in lines between with a sprinkling of sand or fine earth enough to slightly cover the roots and aid them in getting through the stones to the back, where, as the wall was raised, the space behind it was packed with gritty earth. This the plants soon found out and rooted firmly in. Even on old walls made with mortar rock plants and small native ferns very often establish themselves, but the "dry" walls are more congenial to rock plants, and one may have any number of beautiful alpine plants in perfect health on them.

Pansy on brick wall.

One charm of this kind of wall garden is that little attention is required afterwards. Even on the best rock gardens things get overrun by others, and weeds come in; but in a well-planted wall we may leave plants for years untouched beyond pulling out any interloping plant or weed that may happen to get in. So little soil, however, is put with the plants that there is little chance of weeds. If the stones

were stuffed with much earth weeds would get in, and it is best to have the merest dusting of soil with the roots, so as not to separate the stones, but let each one rest firmly on the one beneath it.

Almost the whole of the beautiful rock and alpine flowers may be trusted to do well in this way, such things as Arabis, Aubrietia, and Iberis being among the easiest to grow; but as these can be grown without walls it is hardly worth while to put them there, pretty as some of the newer forms of the Aubrietia are. Between

Androsace. Chaddlewood, Plympton, Devon.

these stones is the very place for mountain Pinks, which thrive better there than on level ground; the dwarf alpine Hairbells, while the alpine Wallflowers and creeping rock plants, like the Toad Flax (Linaria), and the Spanish Erinus, are quite at home there. The Gentianella does very well on the cool sides of such walls, and we get a different result according to the aspect. All our little pretty wall ferns, now becoming so rare where hawkers abound, do perfectly on such rough walls, and the alpine Phloxes may be used, though they are not so much in need of the comfort of a wall as the European alpine plants, the Rocky Mountain dwarf Phloxes being very hardy

and enduring in our gardens on level ground. The advantage of the wall is that we can grow things that would perish on level ground owing to excitement of growth in winter, or other causes. The Rock-foils are charming on a wall, particularly the silvery kinds, and the little stone covering Sandwort (A. balearica) will run everywhere over such a wall. Stonecrops and Houseleeks would do too, but are easily grown in any open spot of ground.

There is in fact no limit to the beauty of rock and alpine flowers we may enjoy on the rough wall so often and most easily made about gardens in rocky and hilly districts, dressed or expensive stone not being needed.

Alpine and Rock Plants for British Gardens.

Where the name of a large and varied family is given as in Phlox, Iris, Rhododendron, Pentstemon. Salix Antirrhinum, it is the alpine, or dwarf mountain kinds, that are meant.

Acæna	Chimaphila	Globularia	Myosotis	Sanguinaria
Acantholimon	Colchicum	Helianthemum	Narcissus	Saponaria
Achillea	Cornus	Helleborus	Nertera	Saxifraga
Acis	Coronilla	Houstonia	Œnothera	Scilla
Æthionema	Crocus	Hutchinsia	Omphalodes	Sedum
Alyssum	Cyclamen	Hyacinthus	Ononis	Sempervivum
Andromeda	Cypripedium	Iberis	Onosma	Senecio
Androsace	Daphne	Iris	Ophrys	Silene
Anemone	Dianthus	Isopyrum	Orchis	Smilacina
Antennaria	Diapensia	Jasione	Orobus	Soldanella
Anthyllis	Dodecatheon	Leiophyllum	Oxalis	Spigelia
Aquilegia	Draba	Leontopodium	Papaver	Statice
Arabis	Dracocephalum	Leucojum	Parnassia	Thalictrum
Arenaria	Dryas	Linaria	Petrocallis	Thlaspi
Armeria	Epigæa	Linnæa	Phlox	Thymus
Asperula	Erigeron	Linum	Polemonium	Trientalis
Astralagus	Erinus	Lithospermum	Polygala	Trillium
Aubrietia	Erodium	Loiseleuria	Potentilla	Triteleia
Bellis	Erpetion	Lychnis	Primula	Tulipa
Bryanthus	Erysimum	Lycopodium	Puschkinia	Tunica
Bulbocodium	Erythronium	Mazus	Pyrola	Vaccinium
Calandrinia	Galanthus	Meconopsis	Pyxidanthera	Veronica
Campanula	Gaultheria	Menziesia	Ranunculus	Vesicaria
Cardamine	Genista	Mertensia	Rhexia	Viola
Cerastium	Gentiana	Muscari	Rhododendron	Waldsteinia
Cheiranthus	Geranium			

CHAPTER XV.

THE WILD GARDEN.

O universal Mother, who dost keep
From everlasting thy foundations deep,
Eldest of things, Great Earth, I sing of thee.

In a rational system of flower gardening one of the first things to do is to get a clear idea of the aim of the "Wild Garden." When I began to plead the cause of the innumerable hardy flowers against the few tender ones put out in a formal way, the answer sometimes was, "We cannot go back to the mixed border"—that is to say, to the old way of arranging flowers in borders. Thinking, then, much of the vast world of plant beauty shut out of our gardens by the "system" then in vogue, I was led to consider the ways in which it might be brought into them, and of the "Wild Garden" as a home for numbers of beautiful hardy plants from other countries which might be naturalised, with very little trouble, in our gardens, fields, and woods—a world of delightful plant beauty that we might make happy around us, in places bare or useless.

The term "Wild Garden" is applied to the placing of perfectly hardy exotic plants in places where they will take care of themselves. It has nothing to do with the "wilderness," though it may be carried out in it. It does not necessarily mean the picturesque garden, for a garden may be picturesque and yet in every part the result of ceaseless care. What it does mean is best explained by the winter Aconite flowering under a grove of naked trees in February; by the Snowflake abundant in meadows by the Thames; and by the Apennine Anemone staining an English grove blue. Some have thought of it as a garden allowed to run wild, or with annuals sown promiscuously, whereas it does not meddle with the flower garden proper at all.

I wish the idea to be kept distinct from the various important phases of hardy plant growth in groups, beds, and borders, in which good culture may produce many happy effects; from the rock garden or borders reserved for choice hardy flowers; from growing hardy plants of fine form; from the ordinary type of spring garden. In the

smaller class of gardens there may be little room for the wild garden, but in the larger gardens, where there is often ample room on the outer fringes of the lawn, in grove, park, copse, or by woodland walks or drives, new and beautiful effects may be got by its means.

Reasons for it.

Among reasons for advocating this system are the following :— 1. Because many hardy flowers will thrive better in rough places than ever they did in the old border. Even small ones like the Ivy-leaved Cyclamen, are naturalised and spread all over the mossy surface of woods. 2. Because, in consequence of plant, fern and flower and climber, grass, and trailing shrub, relieving each other, they will look infinitely better than in stiff gardens. 3. Because no ugly effects will result from decay and the swift passage of the seasons. In a semi-wild state the beauty of a species will show in flowering time; and when out of bloom they will be succeeded by other kinds, or lost among the numerous objects around. 4. Because it will enable us to grow many plants that have never yet obtained a place in our "trim gardens"—multitudes that are not showy enough to be considered worthy of a place in a garden. Among the plants often thought unfit for garden cultivation are a number like the coarser American Asters and Golden Rods, which overrun the choicer border-flowers when planted among them. Such plants would be quite at home in neglected places, where their blossoms might be seen in due season. To these might be added plants like the winter Heliotrope, and many others, which, while interesting in the garden, are apt to spread so rapidly as to become a nuisance. 5. Because in this way we may settle the question of spring flowers, and the spring garden, as well as that of hardy flowers generally; and many parts of the grounds may be made alive with spring flowers, without in the least interfering with the flower garden itself. The blue stars of the Apennine Anemone will be seen to greater advantage when in half-shady places, under trees, or in the meadow grass, than in any flower garden, and this is but one of many of sweet spring flowers that will succeed in like ways.

Narcissi in the wild garden.

Perhaps an example or two of what has already been done with Daffodils and Snowdrops may serve to show the way, and explain the gains of the wild garden, and there is no more charming flower to begin with than the Narcissus, which, while fair in form as any Orchid or Lily of the tropics, is as much at home in our climate as the Kingcups in the marsh and the Primroses in the wood. And when the wild Narcissus comes with these, in the woods and orchards of Northern France and Southern England it has also for companions the Violet and the Cowslip, hardiest children

Narcissus in turf at Warley Place, Essex.

of the north, blooming in and near the still leafless woods. And this fact should lead us to see that it is not only a garden flower we have here, but one which may give glorious beauty to our woods and fields and meadows as well as to the pleasure grounds.

In our country in a great many places there is plenty of room to grow them in other ways than in the garden proper, and this not merely in country seats, but in orchards and cool meadows. To chance growth in such places we owe it already that many Narcissi or Daffodils which were lost to gardens, in the period when hardy plants were wholly set aside for bedding plants, have been preserved to us, at first probably in many cases thrown out with the garden refuse. In many places in Ireland and the west of England Narcissi lost to gardens have been found in old orchards and meadows.

Three months after our native kind has flowered in the weald of Sussex and in the woods or orchards of Normandy, many of its allies are beneath the snow in the mountain valleys of Europe, waiting till the summer sun melts the deep snow. On a high plateau in Auvergne I saw many acres in full bloom on July 16, 1894, and these high plateaux are much colder than our own country generally. Soils that are cool and stiff and not favourable to a great variety of plants suit Narcissi perfectly. On the cool mountain marshes and pastures, where the snow lies deep, the plant has abundance of moisture—one reason why it succeeds better in our cool soils. In any case it does so, and it is mostly on dry light soils that Narcissi fail to succeed. Light, sandy or chalky soils in the south of England are useless, and Narcissus culture on a large scale should not be attempted on such soils. We must not court failure, and however freely in some soils Narcissi grow in turf, there is no law clearer than that all plants will not grow in any one soil, and it is a mercy, too, for if all soils were alike, we should find gardens far more monotonous than they are now.

The fine distant effect of Narcissi in groups in the grass should not be forgotten. It is distinct from their effect in gardens, and it is most charming to see them reflect, as it were, the glory of the spring sun. It is not only their effect near at hand that charms us, but as we walk about we may see them in the distance in varying lights, sometimes through and beyond the leafless woods or copses. And there is nothing we have to fear in this charming work save the common sin—overdoing. To scatter Narcissi equally over the grass everywhere is to destroy all chance of repose, of relief, and of seeing them in the ways in which they often arrange themselves. It is almost as easy to plant in pretty ways as in ugly ways if we take the trouble to think of it. There are hints to be gathered from the way wild plants arrange themselves, and even from the sky. Often a small

Snowdrops in grass, Straffan, Kildare.

cloud passing in the sky will give a very good form for a group, and be instructive even in being closer and more solid towards its centre, as groups of Narcissi in the grass should often be. The regular garden way of setting things out is very necessary in the garden, but it will not do at all if we are to get the pictures we can get from Narcissi in the turf, and it is always well to keep open turf here and there among the groups, and in a lawn or a meadow we should leave a large breadth quite free of flowers.

The illustration is from a photograph taken by Mr John McLeitch at Straffan, Co. Kildare, and from it one may gain a glimpse of the pretty and natural way in which these flowers have grouped themselves on the greensward beneath the red-twigged Limes and on the soft and mossy lawns. Originally no doubt the Snowdrops were planted, but they have seeded themselves so long that they are now thoroughly naturalised, and one of the sights to see at Straffan Gardens is the Snowdrops at their best under the leafless trees. The common single and double forms are still the best for grouping in quantity and for naturalisation everywhere. There are finer varieties, but none grow and increase so well in our gardens as do these northern kinds. The best of the eastern Snowdrops are very bold and beautiful; they are unsurpassed for vigour of leafage and size of bloom if carefully cultivated, but they may not grow and increase on the grass as do G. nivalis and all its forms.

Snowdrops naturalised.

For solid green leafage and size of flower, G. Ikariæ when well grown is the finest of all Snowdrops, but it is from Asia Minor, and seems to really love our climate, and is likely to naturalise itself with us as G. nivalis has done. The best of all the really hardy and truly northern Snowdrops is a fine form of G. nivalis, leaning to the broad-leaved or G. caucasicus group, which was found in the Crimea in 1856 and introduced from the Tchernaya valley to Straffan. It is called G. nivalis grandis, or the Straffan Snowdrop, or G. caucasicus var. grandis, and to see it at its best is a great pleasure. It is really a tall, vigorous-habited, and free-flowering form of the wild Snowdrop (G. nivalis) as found in the Crimea. The flowers are very large and pure in colour, and being borne on stalks a foot or more in length they bunch better than do those of the common type. G. plicatus is also from the Crimea, but is, as I have said, quite different, having much broader plicate leaves and smaller flowers.

Snowdrops generally like deep, moist soils and half shade, as their flowers wither and brown quickly on dry, light soils in full sunshine. In damp wood, copses, and hedgerows they seem most at home, and

like Narcissi and many other early flowering bulbs, they rather enjoy flooding or occasional irrigation after root and top growth have begun. At Straffan the lawn lies low down near the river Liffey, and it is sometimes submerged for a day or two after the snow melts in early spring or after heavy rains. From May until September, however, the bulbs are dry among the tree roots with the dense canopy of Lime leafage overhead, as are also the roots of the sky-blue Apennine Anemone that bear them company. We are beginning to perceive that, as a broad rule, some bulbous plants enjoy growing amongst the roots of other plants, or of trees and shrubs, or in the grass of lawn or meadow. The wild Daffodil and Bluebells do this as well as the Snowdrop, and those who have tried to dig up bulbs of any kind abroad with a knife or even with a botanical trowel, will remember how tightly wedged they frequently are in roots of various kinds, or jammed tightly in both roots and stones.

Natural groups.

All planting in the grass should be in natural groups or prettily fringed colonies, growing to and fro as they like after planting. Lessons in this grouping are to be had in the woods, copses, heaths, and meadows, by those who look about them as they go. At first many will find it difficult to get out of formal masses, but they may be got over by studying natural groupings of wild flowers. Once established, the plants soon begin to group themselves in pretty ways.

The secret of the soil.

In the cultivation of hardy plants and especially in wild gardening the important thing is to find out what things really do in the soil, without which much good way cannot be made. Many people make errors in planting things that are tender in our country and very often fail in consequence; but apart from such risky planting perfectly hardy plants may disappear owing to some dislike of the soil. They flower feebly at first and afterwards gradually wane in spite of all our efforts. The Narcissus, which is so free and enduring in cool damp soil, does little good on warm, light or chalky soil. Some things are so omnivorous in their appetites that they will grow anywhere, but some, the more beautiful races of bulbous and other early flowers, will only thrive and stay with us where they like the soil. It should be clearly seen therefore that what may be done with any good result in the wild garden cannot be determined beforehand, but must depend on the nature of the soil and other circumstances which can be known only to those who study the ground.

Where the branches of trees, both evergreen and summer-leafing, sweep the turf in pleasure grounds many pretty spring-flowering

bulbs may be naturalised beneath the branches, and will thrive without attention. It is chiefly in the case of deciduous trees that this can be done; but even in the case of Conifers and Evergreens some graceful objects may be dotted beneath the outermost points of their lower branches. We know that a great number of our spring flowers and hardy bulbs mature their foliage and go to rest early in the year. In spring they require light and sun, which they obtain abundantly under the summer-leafing tree; they have time to flower and grow under it before the foliage of the tree appears; then, as the summer heats approach, they are overshadowed, and go to rest; but the leaves of the tree once fallen, they soon begin to reappear and cover the ground with beauty.

Flowers beneath trees.

Some Plants for the Wild Garden.

The following are the chief families of plants that may be used in the wild garden. Where families are named which are British as well as natives of the Continent of Europe, as in the case of, say, Scilla, the foreign kinds are meant. In considering what may be done in naturalising plants in a given position, it may be well to cast the eye over the families available.

Acanthus
Aconite, Winter
Asphodel
Aubrietia
Barrenwort
Bee Balm
Bellflower
Bindweed
Blood Root
Borage
Broom
Dane's Blood
Clematis
Columbine
Comfrey
Compass Plant
Cornflower
Coronilla
Cotton Thistle
Cow Parsnip
Crane's-bill
Crocus
Cyclamen
Daffodil
Day Lily
Dog's-tooth Violet
Ferns, Hardy
Forget-me-not
Foxglove
French Willow
Giant Fennel
Giant Scabious
Globe Flower
Globe Thistle
Golden Rod
Grape Hyacinth
Heath
Heliotrope, Winter
Hepatica
Holly, Sea
Honesty
Honeysuckle
Houseleeks
Iris
Knotwort
Lavender
Leopard's-bane
Lily
Lily-of-the-valley
Loosestrife
Lungwort
Lupine
Mallow
Meadow Rue
Meadow Saffron
Meadow Sweet
Mimulus
Monk's Hood
Mountain Avens
Mullein
Narcissus
Omphalodes
Ox-eye Daisy
Pæony
Pea, everlasting
Periwinkle
Phlox
Plantain Lily
Pond-flower
Poppy
Primrose, Evening
Rest Harrow
Rocket
Rose, wild kinds
St Bruno's Lily
St John's Wort
Sandwort
Scabious
Scilla
Snake's Head
Snapdragon
Snowdrop
Snowflake
Solomon's Seal
Star of Bethlehem
Starwort
Stonecrop
Sun Rose
Sunflower (Perennial)
Thyme
Tulip
Viola
Virginian Creeper
Virginian Poke
Wallflower
Water-Lily
Windflower
Wistaria
Wood Lily

Wreath of old Wistaria, Efford Manor.

CHAPTER XVI.

SPRING GARDENS.

"I have seen foreign flowers in hothouses of the most beautiful nature, but I do not care a straw for them. The simple flowers of our spring are what I want to see again."—JOHN KEATS (Letter to James Rice).

IN our islands, swept by the winds of iceless seas, spring wakes early in the year, when the plains of the north and the mountains of the south and centre are cold in snow. In our green springs the flowers of northern and alpine countries open long before they do in their native homes; hence the artistic error of any system of flower gardening which leaves out the myriad flowers of spring. It is no longer a question of gardens being bare of the right plants; nurseries and gardens where there are many good plants are not rare, but to make effective use of these much thought is seldom given. Gardens are often rich in plants but poor in beauty, many being stuffed with things, but ugly in effect.

A common kind of "spring gardening" consists of "bedding out" Forget-me-nots, Pansies, Daisies, Catchflies, and Hyacinths; but this way is only one of many, and the meanest, most costly, and inartistic. It began when we had few good spring flowers, now we have many; and hence this chapter must deal with other and better ways.

Rock plants.

There are so many hardy plants among these that flower in spring (many alpine plants blooming as soon as the snow goes), that there is not room to name them all. We must omit any detailed notice of plants like Adonis, Cyclamen, Draba, Erodium, and the smaller Rockfoils and Stonecrops, Dicentra, Fumaria, Orobus, Ramondia, Silene, and many

other flowers of the rocks and hills, which though beautiful individually do not tell so well in the picture as many here named.

Among rock plants the first place belongs to certain mountain plants of the northern world, which, in our country, come into bloom before the early shrubs and trees, and among the first bold plants to cheer us in spring are those of the Wallflower order—the yellow Alyssum, effective and easy to grow, the white Arabis, even more grown in Northern France than in England (it well deserves to be spread about in sheets and effective groups), and the beautiful purple Rock Cresses (Aubrietia), lovely plants of the mountains of Greece and the countries near, which have developed a number of varieties even more beautiful in colour than the wild kinds. Nothing for gardens can be more precious than these plants, the long spring bloom being effective in almost every kind of flower gardening—banks, walls, edgings, borders of evergreen rock plants, or carpets beneath sparsely set shrubs. The white evergreen Candytufts are also effective plants in clear sheets for borders, edgings to beds, tops of walls, and the rougher flanks of the rock garden. These are among the plants that have been set out in hard lines in flower gardens, but it is easy to have better effects from them in groups, and even in broken lines and masses, or as carpets beneath bushes, thus giving softer and more beautiful, if less definite, effects. Happy always on castle wall and rocks, the Wallflower is most welcome in the garden, where, on warm soils and in genial climates, it does well, but hard winters injure it often in cold and inland districts, and it is almost like a tender plant in such conditions. Yet it must ever be one of the flowers best worth growing in sheltered and warm gardens; and even in cold places one may have a few under the eaves of cottages and on dry south borders.

Purple Rock Cresses.

The Windflowers are a noble group among the most beautiful of the northern and eastern flowers, some being easily naturalised (like the blue Italian and Greek Anemones), while the showy Poppy Anemones are easily grown where the soils are light and warm, and in genial warm districts; but they require some care on certain soils, and are among the plants we must cultivate and even protect on cold soils in hard winters. The same is true of the brilliant Asiatic Ranunculus and all its varied forms Persian, Turkish, and French, as they may be called, all forms of one wild North African buttercup, unhappily too tender to endure our winters in the open air, but they should be abundantly grown on the warm limestone and other soils which suit them, as about our coasts and in Ireland. There is no more effective way of growing these

The Windflowers

than in simple 4-foot beds in the kitchen or reserve garden. The Wood Anemone is so often seen in the woods that there is rarely need to grow it; but some of its varieties are essential, most beautiful being A. Robinsoniana, a flower of lovely blue colour, and a distinct gain in the spring garden grown in almost any way. The Hepatica is a lovely little Anemone where the soil is free, though slow in some soils, and where it grows well all its varieties should be encouraged, in borders and margins of beds of American bushes as well as in the rock garden. The Snowdrop Windflower (A. sylvestris) is most graceful in bud and bloom, but a little capricious, and not blooming well on all soils, unlike in this way our Wood Windflowers, which are as constant as the Kingcups. The Pasque-flower is lovely on the chalk downs and fields of Normandy and parts of England in spring, but never quite so pretty in a garden. It would be worth naturalising in chalky fields and woods or banks.

Columbine, Marsh Marigold, Clematis, and Globe-flower.

Columbines are very beautiful in the early part of the year, and if we had nothing but the common kind (Aquilegia vulgaris) and its forms, they would be precious; but there are many others which thrive in free soils, some of which are very graceful in form and charming in colour. The Kingcup or Marsh Marigold, so fine in wet meadows and by the riverside, should be brought into gardens wherever there is water, as it is a most effective plant when well grown, and there are several forms, double and single. The Clematis, the larger kinds, are mostly for the summer, but some (C. montana, C. alpina, C. cirrhosa) are at their best in the spring; they should be made abundant use of on house walls and over banks, trees and shrubs. The Winter Aconite (earliest of spring flowers) naturalises itself in some soils, but on others dwindles and dies out, and it should not be grown in the garden, but in shrubberies, copses, or woods where the soil suits it. Some kinds of hardy Ranunculus, the herbaceous double kinds, are good in colour, and in bold groups pretty; but taller and bolder and finer in effect are the Globe-flowers, easily naturalised in moist, grassy places or by water, and also free and telling among stout herbaceous plants. The most distinct addition to the spring garden of recent years is the Oriental Hellebore in its many beautiful varieties. They are most effective, sturdy, impressive plants for opening the flower year with, often blooming abundantly at the dawn of spring, and have the essential merit of not requiring annual culture, tufts remaining in vigour in the same spot for many years.

The European Dog's-tooth Violet is pretty in the budding grass, where it is free in growth and bloom, but it is more enduring in the shade of shrubs. The Fritillary is one of the most welcome

flowers for grass, and is best in moist meadows; the rarer kinds do well in good garden soil, those with pale yellow bells being beautiful. Every plant such as these, which we can so easily grow at home in grassy places, makes our cares about the spring garden so much the less, and allows of keeping all the precious beds of the flower garden itself for the plants that require some care and rich soil always.

Snowdrop, Snowflake, Crocuses, Scilla, and Fritillary.

The Snowdrop is of even greater value of late years owing to new forms of it, some of which have been brought from Asia Minor. In some soils it is quite free and becomes easily naturalised, in others it dwindles away, and the same is true of the vernal Snowflake (Leucojum vernum), a beautiful plant. The larger Snowflakes are more free in ordinary soils, and easily naturalised in river bank soil. The Crocus, the most brilliant of spring flowers, does not always lend itself to growing naturally in every soil, but on some it is quite at home, especially those of a chalky nature, and will naturalise itself under trees.

To the Scilla we owe much, from the wild plants of our woods to the vivid Siberian kind; some kinds are essential in the garden, and some, like the Spanish Scilla (S. Campanulata), may be naturalised in free soils. Allies of these lovely early flowers have come of recent years to our gardens—the beautiful Chionodoxa from Asia Minor, of about the same stature and effect as the prettiest of the Scillas, and some of them even more precious for colour.

About the same time come the precious Spanish Iris in many colours, lovely as Orchids, and very easily grown, and the English Iris. The Grape Hyacinths are pretty and early plants of Southern Europe, beautiful in colour. They increase rapidly, and some kinds do very well in the grass in free and peaty soils, but the rarer ones are best on warm borders and groups in the rock garden. In our country, where there are so many cool and rich soils allowing of the Narcissus being naturalised and grown in many ways, it is, perhaps, on the whole, the most precious of all our spring flowers. But the Tulip is the most showy in colour of all the flowers of spring, and for its effectiveness is better worthy of special culture than most; indeed, the florists' kinds and the various rare garden Tulips must be well grown to show their full size and beauty.

Iris, Narcissus, and Tulip.

Pæonies are nobly effective in many ways. Where single or other kinds are plentiful they may be well used as broad groups in new plantations, among shrubs and low trees, and as to the choice double kinds, no plants better deserve a little garden or border to themselves, while the tree kinds make superb groups on the

Pæony, Poppy, and Lupin.

lawn and are safer from frost on high ground. The great scarlet Poppies are showy in spring, and best grown among trees and in the wild garden, and with them may be named the Welsh Poppy, a very effective plant in spring as well as summer, and often sowing itself in all sorts of places. The various garden forms of the opium Poppy and of the field Poppy, both double and single, are very showy where any space is given to annual flowers.

The common perennial Lupin is a very showy, pretty plant grown in a free way in groups and masses, and may sometimes be naturalised, and, associated with Poppies and free-growing Columbines in the wild garden, it is very effective.

Primrose, Tulip, Cowslip, Polyanthus, and Auricula.

Primroses are a lovely host for the garden, especially the garden varieties of the common Primrose, Cowslip, and Oxlip. Few things deserve a better place, or are more worthy of good culture in visible groups and colonies or rich garden borders. Apart from the lovely races of garden forms raised from the Primrose, the Cowslip, and the Oxlip, and also the Alpine Auriculas, double Primroses should not be forgotten, as in all moist districts and in peaty and free soil they give such tender and beautiful colour in groups, borders, or slightly shaded among dwarf shrubs. Primroses and Polyanthus of native origin are well backed up by the beautiful Indian Primrose (Primula rosea), which thrives apace in cool soils in the north of England and in Scotland, and which, when grown in bold groups, is very good in effect, as are the purplish Indian Primroses under like conditions.

Rockfoil, Gentian, and Alpine Phlox

The large-leaved Indian Rockfoils (Saxifraga) are in many soils very easily grown, and they are showy spring flowers in bold groups, especially some of the improved varieties. Although it is only in places where there is rocky ground or large rock gardens that one can get the beauty of the smaller Mountain Rockfoils (Saxifraga) we cannot omit to notice their beauty—both the white, yellow, and crimson-flowered kind—when seen in masses. The same may be said of Gentians; beautiful as they are in the mountains, few gardens have positions where we can get their fine effect, always excepting the old Gentianella (G. acaulis), which in old Scotch and English gardens used to make such handsome broad edgings, and which is easily grown in a cool soil, and gives, perhaps, the noblest effect of blue flowers that one can enjoy in our latitudes in spring. The tall Phloxes are plants of the summer, but, there is a group of American dwarf alpine Phloxes of the mountains which are among the hardiest and most cheery flowers of spring, thriving on any dry banks and in the drier parts of rock

gardens, forming mossy edgings in the flower garden, and breaking into a foam of flowers early in spring.

Pansies.

The Viola family is most precious, not only in the many forms of the sweet Violet, which will always deserve garden cultivation, but in the numerous varieties of the Pansy, which flower so effectively in the spring. The best of all, perhaps, for artistic use are the Tufted Pansies, which are delightfully simple in colour—white, pale blue, or lavender, and various other delicate shades. Almost perennial in character, they can be increased and kept true, and they give us distinct and delicate colour in masses as wide as we wish, instead of the old "variegated" effect of Pansies.

Forget-me-nots.

These are among the most welcome flowers of spring. Before the common and most beautiful of all—the marsh Forget-me-not—comes, there are the wood Forget-me-not (M. Sylvatica) and M. dissitiflora and M. alpestris, all precious early flowers. Allied to the ever-welcome Forget-me-not is the common Omphalodes, or creeping Forget-me-not, valuable for its freedom in growth in half shady or rough places in almost any soil—one of the most precious of the early flowers which take care of themselves if we take a little trouble to put them in likely places.

Annual flowers.

Among annuals that bloom in spring where the soil is favourable, excellent results are often obtained by sowing Sweet Peas in autumn. When this is done, and they escape the winter, they give welcome hedges of flowers in the early year. So, too, the Cornflower, a lovely spring flower, and perhaps the finest blue we have among annual plants; but to have it good and early it should be always sown in autumn, and for effect it should be in broad masses, sometimes among shrubs or in recently broken ground which we desire to cover. Some of the Californian annuals are handsome and vigorous when sown in autumn, always provided they escape the winter. The White Godetia is very fine in this way. In all chalky, sandy, and warm soils the Stocks for spring bloom are handsome and fragrant.

Trees that bloom in spring.

Some of the finest effects come from the early trees and shrubs. Among the most stately are the Buckeyes (Æsculis), particularly the red kinds, fine in all stages, but especially when old. The snowy Mespilus is a hardy, low-sized tree, blooming regularly, and well deserves a place in the pleasure garden or the fringes of shrubberies. The Almonds, more than any shrubs, perhaps, in our country and in France, light up the earliest days of spring, and, like most southern

trees, are best in warm valley soils. They should be in groups to tell in the home landscape. The double Peaches are lovely in France, but as yet rarely so with us, owing, perhaps, to some defect of the stock used. Perhaps of all the hardy shrubs ever brought to our country the Azaleas are the most precious for effect, often wild on the mountains of America, and many forms have been raised in gardens which are of the highest value. Many places do not as yet show the great beauty of the different groups of hardy Azalea, particularly the late kinds raised of recent years. A neglected tree with us is the Judas-tree, which is very handsome in groups, as it ought always to be grown, and not as a starved single tree. The various double Cherries are noble flowering trees, being showy as well as delicate in bloom, and the Japanese kinds do quite as well as the old French and English double Cherries, though the trees are apt to perish from grafting. The American Fringe-tree (Chionanthus) is pretty, but some American flowering trees do not ripen their wood well enough in England generally to give us the handsome effects seen in their own country. Hawthorns, those of our own country, make natural spring gardens of hills and rocky places, and should lead us to give a place to the many other species to be found in the mountains of Europe and America, which vary the bloom and prolong the season of early-flowering trees. There are many varieties of our native Hawthorn—red, pink, double, and weeping. The Alpine Laburnum has for years been a joy with its golden rain, and of late we are doubly well off with improved forms, with long chains of golden flowers.

Among the early charms in the spring garden are the slender wands of the Forsythia, hardy Chinese bushes, pale yellow, delightful in effect when grown in picturesque ways; effective also on walls or grouped in the open air on banks. Another plant of refined beauty, but too little planted, is the Snowdrop-tree (Halesia). Unlike other American trees, it ripens its wood in our country, and often flowers well. The Mountain Laurel of America (Kalmia) is one of the most beautiful things ever brought to our country, and as a late spring flower is precious, thriving both in the open and in half shady places.

Broom and Furze.

There is no more showy plant or one more beautiful in effect in masses than the common Broom and all its allies that are hardy enough, even the little Spanish Furze giving fine colour. The common Broom should be encouraged on bluffs and sandy or gravelly places, so as to save us the trouble of growing it in gardens, for in effect there is nothing better. The same may be said of the Furze, which is such a beautiful plant in England and the coast regions of France, and the double Furze deserves to be massed in the garden in picturesque

groups. In country seats, especially those commanding views, its value in the foreground is very great, and it is so easily raised from seed that fine effects are very easily secured, though it may be cut down now and then in hard winters.

Rhododendron and Magnolia.

The glory of spring in our pleasure grounds are the Rhododendrons; but they are so overmastering in their effect on people's minds that very often they lead to neglect of other things. It would be difficult to overrate their charms; but even amongst them we require to discriminate and avoid the too early and tender kinds. Many of the kinds raised from R. ponticum and the Indian Rhododendron, while they thrive in mild districts in the south of England and west of France, near the sea, are not hardy in the country generally. Some of these tender hybrids certainly flower early, but we get little good from that The essential thing, when we give space to a hardy shrub, is that we should get its bloom in perfection, and therefore we should choose the broad-leaved hardy kinds, which are mostly raised from the very hardy North American R. catawbiense, and be a little particular in grouping the prettiest colours, never using a grafted plant. For many years the Yulan Magnolia, when well grown, has been one of the finest trees in English southern gardens, and nothing is more effective than the Lily-tree in gardens like Syon and others in the Thames valley; while of late years we have seen precious additions to this, the noblest family of flowering trees. Some of these, like M. stellata, have proved to be valuable; all are worth a trial, and, as to the kinds we are sure of, the great thing is to group them.

Alpine forest Heath.

Amongst the most beautiful of the smaller alpine bushes ever brought to our country is the alpine forest Heath, which is cheery and bright for weeks in spring. It is one of the plants that never fails us, and only requires to be grown in bold ways, fully exposed to the sun. Other Heaths, like the Mediterranean Heath, are also beautiful in some favoured parts of the country, but not so hardy generally as the little alpine forest Heath which has the greatest endurance and perfect hardiness.

Pyrus japonica, a handsome old shrub often planted on cottage garden walls, may in many soils be used with good effect in groups and hedges. The evergreen Barberries in various forms are beautiful early shrubs, with soft yellow flowers, and excellent when grouped in some quantity. Two very important families are the Deutzias and Syringas, which are varied and beautiful, mostly in white masses. The flowering Currant (Ribes) of the mountains of N.W. America is in all its forms a very cheery and early bush, which tells well in the home landscape

if rightly placed; but perhaps the most welcome and important of all early trees and shrubs is the Lilac, which in Britain is often grown in a few kinds only, when there are many in France. Beautiful in almost any position, Lilacs are most effective when planted together, so as to enjoy the full sun to ripen their wood; and they should be planted on their own roots always.

Crab bloom.

Apart from the many orchard trees grown for their fruit, we have in our own day to welcome some of their allies—lovely in flower, if often poor in fruit. Our country has never been without some of this kind of beauty, as the Crab itself is as handsome a flowering tree as are many of the Apples which are descended from it in all the countries in Europe, from Russia to Spain, and in our gardens there were for many years the old Chinese double Pyrus, a handsome tree which became popular, and the American Crab, which never became so. But of late years we have been enriched by the Japan Crab, a lovely tree for some weeks in spring and other handsome kinds, including Parkman's Crab, which comes to us under more than one name, and a red form of the Japanese flowering Crab before mentioned. All these trees are as hardy as our native Crab, and differ much in colour and sometimes also in form. It is difficult to describe how much beauty they give where well grown and well placed; they are not the kind of things we lose owing to change of fashion, and in planting them it is well to put them in groups where they will tell. Apart from these more or less wild species there are numbers of hybrid Crabs raised between the Siberian and some common Apples in America and in our country that are beautiful also in flower, and remarkable too for beauty of fruit, so that a beautiful grove of flowering trees might be formed of Crabs alone. With these many fine things, and the various Honeysuckles, we are carried bravely down to the time of Rose and Lily, summer flowers, though Roses often come on warm walls in spring.

Spring flowers in sun and shade.

It is worth while thinking of the difference in the blooming of spring flowers in various aspects, as differences in that way will often give us a longer season of bloom of some of our most precious things. Daffodils do better in half shade than in full sunshine, and Scillas and other bulbs are like the Daffodils in liking half shady spots; so also Crown Imperials, which, like the Scillas, bleach badly if fully exposed to the sun. We may see the Wood Hyacinth pass out of bloom on the southern slopes of a hill, and in fresh and fair bloom on its northern slopes. Flowering shrubs, creepers on walls, and all early plants are influenced in the same way. Such facts may be taken advantage of in many ways, especially with

the nobler flowers that we make much use of. If different aspects are worth securing for hardy flowers generally, they are doubly so for those of the spring, when we often have storms of snow and sleet that may destroy an early bloom. If fortunate enough to have the same plant on the north side of the hill or wall, we have still a chance of a second bloom, and a difference of two or three weeks in the blooming of a plant.

Early Summer Flowers Hardy in English Gardens.

Adonis	Convallaria	Fritillaria	Muscari	Sanguinaria
Alyssum	Crocus	Fumaria	Myosotis	Saponaria
Androsace	Cyclamen	Galanthus	Narcissus	Saxifraga
Anemone	Dentaria	Geum	Omphalodes	Scilla
Aquilegia	Dianthus	Gypsophila	Ornithogalum	Sedum
Arabis	Dicentra	Helleborus	Orobus	Silene
Arenaria	Dodecatheon	Hepatica	Pæonia	Trillium
Armeria	Doronicum	Hesperis	Papaver	Triteleia
Asperula	Draba	Hyacinthus	Phlox	Trollius
Asphodelus	Epimedium	Iberis	Polemonium	Tulipa
Aubrietia	Eranthis	Iris	Potentilla	Uvularia
Bellis	Erinus	Leucojum	Primula	Veronica
Caltha	Erodium	Linum	Pulmonaria	Vinca
Centaurea	Erythronium	Lychnis	Ramondia	Viola
Clematis	Ficaria	Meconopsis	Ranunculus	

Spring-flowering Trees and Shrubs.

Æsculus	Cratægus	Genista	Mespilus	Styrax
Amelanchier	Cydonia	Halesia	Philadelphus	Syringa
Amygdalus	Cytisus	Kerria	Prunus	Tamarix
Andromeda	Daphne	Laburnum	Pyrus	Ulex
Azalea	Deutzia	Lonicera	Rhododendron	Viburnum
Berberis	Erica	Magnolia	Ribes	Weigela
Cerasus	Exochorda	Mahonia	Spartium	Wistaria
Cercis	Forsythia	Malus	Spiræa	

THE SUMMER GARDEN.

CHAPTER XVII.

THE NEW ROSE GARDEN.

THERE is great loss to the flower garden from the usual way of growing the Rose as a thing apart, and its absence at present from many flower gardens. It is surprising to see how poor and hard many places are to which the beauty of the Rose might add delight, and the only compensation for all this blank is what is called the rosery, which in large places is often an ugly thing with plants that usually only blossom for a few weeks in summer. This idea of the Rose garden arose when we had a much smaller number of Roses, and a greater number of these were kinds that flowered in summer mainly.

The nomenclature, too, in use among Rose-growers by which Roses that flower the shortest time were given the name of Hybrid Perpetuals has had something to do with the absence of the Rose from the flower garden. Shows, too, have had a bad effect on the Rose in the garden, where it is many times more important than as a show flower. The whole aim of the man who showed Roses was to get a certain number of large blooms grown on the Dog Rose, Manetti, or any stock which enabled him to get this at the least cost.

It is instructive to study the influence of Rose books upon the Rose as well as that of the Rose exhibitions, as they brought about an idea that the Rose was not a "decorative" plant in the language of recent days. In these books it was laid down that the Rose did not associate properly with other flowers, and it was therefore better to put it in a place by itself, and, though this false idea had less influence in the cottage garden, it did harm in all large gardens. In a recent book on the Rose by Mr Foster-Melliar we read:

The Rose not a "decorative" plant.

> I do not consider the Rose pre-eminent as a decorative plant; several simpler flowers, much less beautiful in themselves, have, to my mind, greater value for general effect in the garden, and even the blooms are, I imagine, more difficult to arrange in water for artistic decoration than lighter, simpler, and less noble flowers.

He, the author, is only describing the practice and views of the Rose exhibitors which most unfortunately ruled the practice of gardeners, and it is very natural many should take the prize-taker as a guide.

There was some reason in the older practice, because until recent years the Roses most grown were summer flowering, that is to say, like our wild Roses, they had a fixed and short time of bloom, usually not more than a few weeks; but in our days, and within the last fifty years, there have been raised a number of Roses, which flower for much longer periods. There are, for example, the Monthly Roses and the lovely Tea Roses, which also come in some way from the Indian Rose, and which, when well grown, will flower throughout the summer. So that, while our forefathers might have been excused for taking the view that Roses are only fit to plant in a place apart, there is no need for the modern grower to do so, who is not tied to the show bench as his one ideal and aim.

Back to the flower garden.

The Rose is not only "decorative" but is the queen of all decorative plants, not in one sort of garden, but in many—not in one race or sort, but in many, from Anna Olivier, Edith Gifford and Tea Roses of that noble type in the heart of the choicest flower garden, to the wild Rose that tosses its long arms from the hedgerows in the rich soils of midland England, and the climbing Roses in their many forms. And fine as the old climbing Roses were, we have now a far nobler race of climbing Teas which, in addition to the highest beauty, have the great quality of flowering, like Bouquet d'Or, throughout the fine summer and late into the autumn.

The outcome of it all is that the Rose must go back to the flower garden—its true place, not only for its own sake, but to save the garden from ugliness, and give it fragrance and beauty of leaf and flower. The idea that we cannot have prolonged bloom from Roses is not true, because the finer Monthly and Tea Roses flower longer than any half-hardy plants, even without the advantage of fresh soil every year which such plants enjoy. I have Roses growing in the same places for many years, which bloom into autumn. And they must come back not only in beds, but in the old ways —over bower and trellis, and as bushes where they are hardy enough to stand our winters, so as to break up flat surfaces and give us light and shade where all is usually so level and hard. But the Rose must not come back in ugly ways, in Roses stuck and mostly starving on the tops of sticks standards, or set in raw beds of manure and pruned hard and set thin so as to develop large blooms; but, as the bloom is beautiful in all stages and sizes,

Roses should be seen closely massed, feathering to the ground, the queen of the flower garden in all ways.

The Standard Rose.

A taking novelty at first, few things have had a worse influence on the flower garden than the Standard Rose. Grown throughout Europe and Britain by millions, it is seen usually in a wretched state, and yet there is something about it which prevents us seeing its bad effect in the garden, and its evil influence on the cultivation of the Rose, for we now and then see a fine and even a picturesque Standard, when the Rose suits the stock it is grafted on, and the soil suits each; but this does not happen often. The term grafting is used here to describe any modes of growing a Rose on any stock or kind, as the English use of the term budding as distinct from grafting is needless, budding being only one of the many forms of grafting.

Of the evil effect of the Standard Rose any one may judge in the suburbs of every town, but its other defects are not so clear to all, such as the exposure high in the air to winter's cold of varieties more or less delicate. On the tops of their ugly stick supports they perish by thousands even in nurseries in the south of England. If these same varieties were on their own roots, even if the severest winter killed the shoots, the root would be quite safe, and the shoots come up again as fresh as ever; so that the frost would only prune our Rose bushes instead of killing them. Even if "worked" low on the "collar" of the stock, grafted Roses have a chance of rooting and keeping out of the way of frost, which they never have when grafted high in the air.

Another element of uncertainty is the kind of stock used. Even if the propagator knows the right stock for the sort he may not for some reason use it, as many have found to their cost who have bought Tea Roses grafted on the Manetti, a stock that in any case has no merit beyond giving a few large blooms for a show the first year; and in many cases it paralyses all growth in the kind grafted on it.

The first care should be to get plants on own roots about as strong as those worked, and it is not difficult to do this with a little patience, as some gardeners and even cottagers strike Roses from cuttings. But no trial would be of any use which did not go over the first year or two, because of the dread phase of the practice alluded to, that the things are grown to sell, and although they look well when they come to us, after a year or two perish.

If we go into the Rose garden of the Luxembourg at Paris or any of the regular roseries in England, we may find half the Roses in a sickly, flowerless state. So sickly are the bushes, or what remains of them, that it is common to see a rosery without any Roses worth

picking after the first flush of bloom is past Think of the number of beautiful things which this has to do with to their harm:—the flowers fairest of all in form, colour, and odour, from the more beautiful tea-scented Roses raised in our own days to the oldest Roses.

Often I have reason to wish that Signor Manetti of Naples had never been born to give his name to the wretched Rose stock that bears it, as among my blighted hopes is a plant of Maréchal Niel Rose, the plants on which have remained as they were at first for the last five years; but this year beside one of them is in bloom the poor Manetti Rose, on which the Maréchal was grafted, and as the Tea Rose will not grow, the Manetti begins to take its place. In some soils and conditions, the Manetti may give some apparent advantages for the first year in making the plant grow rapidly, and perhaps giving one or two flowers to be cut off for a show, but afterwards it is all the other way; the Rose fails on it and Tea Roses do not grow on it at all. It is quite distinct in nature from them, and nurserymen who use the Manetti for Tea Roses do no good to their own craft.

Roses and Manure.

In most gardens where people pay any attention to Roses the ground in which they grow is in winter densely coated with manure, often raw and ugly to see in a flower garden—perhaps under the windows of the best rooms of the house. This is the regulation way of catalogues and books, but it is needless and impossible in a beautiful Rose garden. Most of our garden Roses are grafted on the Dog Rose of our hedgerows, which does best in the heavy, cool loams of the midlands, so that if we want the ordinary grafted garden Rose to do well we must give it not less than 30 inches in depth of like soil. This is often of a rich nature, and it is very easy to add in putting the soil in all the manure which the Rose may want for some years, so that the surface of the bed might be planted with light-rooting rock and like plants, one of the prettiest ways being to surface it with Pansies and Violets. I have beds of Tea Roses over which rock plants have been growing for years without the Roses suffering.

If we free our minds from the incubus of these wrong teachings and practices, many beautiful things may be done with Roses for garden adornment. What is wanted mainly is that the very finest Roses, and above all long-blooming ones like Monthly Roses and such Tea Roses as G. Nabonnand, Marie Van Houtte, and Anna Olivier, should be brought into the flower garden in bold masses and groups to give variety and prolonged bloom, using the choicest Tea Roses in the flower beds, with wreaths of yellow climb-

Climbing Tea and Bush Roses in Rose Garden, July.

ing Roses swinging in the air, and on walls, especially the climbing Tea Roses.

Perhaps it may be worth while to tell the story of a trial that succeeded as it may be of more use to the beginner. My idea was to get the best of the Roses into the flower garden instead of bedding plants or coarse perennials, and show at the same time the error of the common ways of growing Roses. Another point was to help to get the flower garden more permanently planted instead of the eternal ups and downs of the beds in spring and autumn and the ugly bareness of the earth at those seasons, and to see if one could not make a step towards the beautiful permanent planting of beds near the house and always in view. Tea Roses only were used for the sake of their great freedom of bloom, and these were all planted in large groups, so that one might judge of their effect and character much better than by the usual ineffective mixed planting. The success of the plan was remarkable both for length of bloom and beauty of flower and foliage, variety of kind and charming range of colour, and also curious and unlooked for variety in each kind. Each Tea Rose varied as the weather varied, and the days passed on: the buds of Anna Olivier in June were not the same as the buds of the same Rose in September, and all kinds showed ceaseless changes in the beauty of bud or bloom from week to week.

My Rose garden.

It was easy to abolish the standard as hopelessly diseased and ugly in effect, but not so easy to get out of the way of grafting on something else, which is the routine in nurseries, and here I had to follow the usual way of getting all the Tea Roses grafted on the common Dog Rose, but always getting the plants "worked" low either on the base of the stock or on the root, so that it is easy in planting to cover the union of the stock with the more precious thing which is grafted on to it, and so protect the Rose from intense cold. There is also a chance in this way of letting the plant so grafted free itself by rooting above the union. Certainly it is so in my garden in a cool and upland district. Some kinds flower, do well for a year or two, and then rapidly diminish in size and beauty; some are very vigorous the first year but die off wholly in the second. The Wild Rose stock has the power to push the Rose into great growth the first year, and then, owing to the stock and graft being of a wholly different origin and nature, there is a conflict in the flows of the sap, and death often ensues. Some Roses that grew freely did not open their buds in our country, and others broke away into small heads and buds which made them useless. However, out of the thousands planted some

No standards.

An Essex Garden, with border of Tea and Monthly Roses.

kinds did admirably, and quite enough of them to make a true garden of Roses, lasting in beauty throughout the summer and autumn.

Forming Rose beds.

Knowing that we had to face the fact of all the Roses being grafted on the Dog Rose it was important to give them a deep, cool loam, and the beds in most cases were dug out to a depth of 30 inches below the surface. Although a rocky bottom no drainage was used, no liquid manure was ever given, and no water even in the hot summers.

Instead of mulching the beds in the usual way, and always vexing the surface with attentions I thought needless, we covered them with Pansies, Violets, Stonecrops, Rockfoils, Thymes, and any little rock plants to spare. Carpeting these Rose beds with life and beauty was half the battle. We do not mulch except with these living plants, many of which are so fragile in their roots that they cannot have much effect in a bed of 3 feet of moist, good soil. So that instead of the bare earth in hot days, the flower shadows are thrown on to soft carpets of fragile rock or mountain plants that we think worth growing for their own sake also.

Climbing Roses.

There are a great number of Roses that lend themselves to this, the old climbing Roses being now aided by a splendid series of long-blooming climbing Tea Roses which are more valuable still. They should be trained abundantly over well-formed pergolas, covered ways, trellises, and fences. In countries a little warmer than ours we see what can be done with Roses as noble climbers; in Algeria, and in Madeira, the climbing Tea Roses running up trees in the loveliest bloom.

Rose culture.

On this day, 1st October 1919, many of the finest Roses are in good bloom. I have grown Roses here for over a quarter of a century with success and without the usual excess of manure below and on the surface, this last called mulching. It seems to me that to cover beds near the house with excreta from the farm and other yards is anything but a sanitary or even a necessary thing to do. So our Rosebeds are done without it either above or below. We never mulch the beds, but cover them with beautiful plants instead. We set the Roses rather thinly and add many plants beneath them, mostly low in stature. The beds were dug deep, a base of poor shale thrown out for 3 feet. The turf on the surface was buried, and that we found to be a mistake, as it was full of grubs of daddy-long-legs and other pests, which destroyed the Carnations for two years afterwards. We ought to have *burned* the turf. The soil was cool loam rather heavier than I should make it now, being then misled by the

catalogues, which told us that Roses must have heavy soil and heaps of manure. Now we only cover the surface with beautiful life, and practise rotation on that. For example, one year's Mignonette is followed by the Missouri Evening Primrose.

In past years an enormous amount of manure was used in gardens in excess of what the plants really needed. Deep soil and a good free texture soil is quite as important. Let us not forget that some so-called artificial manures are really natural, such as bone and other fertilisers, which may be used when helpful; but in my garden, where we have certainly the finest Roses, for many years we use no stable manure.

Tea and China Roses were grown for many years, and as they were invariably bought grafted on the Dog Brier of the hedgerow, much trouble arose from suckers. But in this case the plants were kept in view in bold groups for ten or more years. In that way the effect of soil, climate, and growth could be seen better than in growing single plants. The main result was that more than half the kinds of Tea Roses perished on the Dog Brier, some after flowering badly for years and some dying altogether; others did well and remained in health. Some like Comtesse du Cayla flowered bravely for some years, and then came the briers in strong force and, being anchored on the great roots of the Dog Brier, were very hard to get up. The right way with all the Chinese Roses is to raise plants from cuttings.

Some Roses of very great value go back in the most provoking way, like a beautiful Rose, Mrs D. M'Kee. With them we had great success from cuttings put not in the heavy loam of the Rose beds but in the lighter soil of the fruit garden.

The main difficulty is transplanting, the roots being more fragile than those of the Brier. The best way of all is to put the cuttings where the plants are wanted to grow, and so ensuring to them a long life. The best time to make cuttings of the half-ripened wood is in September, or, in warm valleys, a little later. Our cuttings are usually about 10 inches long and often with a heel, and are inserted for the greater part of their length in the freest sandy loam in the place. We began with heavy soil, which in catalogues is said to be the best—that is because the Brier being universally used the soil must suit it; but for the Teas and Chinas the best soil is a free sandy loam in which the roots can find all they need.

THE SUMMER GARDEN.

CHAPTER XVIII.

CARNATION, LILY, IRIS, AND THE NOBLER SUMMER FLOWERS.

THE flowers of our own latitudes, when they are beautiful, are entitled to the first place in our gardens, and among these flowers, after the Rose, should come the Carnation, in all its brilliancy of colour, where the soil and climate are fitted for it, as is the case over a large area of our sea-girt land.

It is not enough that the laced, flaked, and other varieties of Carnation should be grown in frames or otherwise; we should show the flower in all its force of colour in our flower gardens. Many who have not the skill, or the time, for the growth of the "florists'" flower, would yet find the brilliant "self" Carnations delightful in their gardens in summer and autumn, and even in winter, for the Carnation, where it does well, has a fine colour-value of foliage in winter, which makes it most useful to all who care for colour in their gardens, adorning the garden throughout the winter and spring, and full of promise for the summer and autumn.

Behind the florists' plates of this century we have the pictures of the Dutch flower painters containing fine Carnations, well grown and admirably drawn after nature. These artists were not confused by any false ideal, and so we have a true record of what the Carnation was three hundred years ago. In these pictures we generally see the finer striped and flaked kinds given the first place, which is natural, as such varieties are apt to strike people the most; and in those days little consideration had yet been given to the question of *effect* in open gardens. In our own day this question has been forced upon us in very unpleasant ways by masses of crudely arranged, and not always pretty flowers.

Over a very large area of the United Kingdom Carnation culture may be carried out well, and perhaps most successfully near the sea. The gentler warmth of the shore in some way influences this, and in any case the best results I have seen from out-door culture have been in places like Scarborough, Edinburgh, Anglesey, the shores of

Dublin Bay, and in sea-shore gardens generally where the soil is warm and good. It is wonderful what one may do in such places as compared with what is possible, say, in the Weald of Kent. At Scarborough we may see Carnations almost forming a bush; near Edinburgh tufts of the Clove Carnation 5 feet in diameter, whereas in the Weald we have to plant annually.

Carnations and Roses at Gravetye.

Lily and Iris.

The Lily had to go too from the flower garden of our own day; it was too tall, and no doubt had other faults, but like the Rose it must come back, and one of the gains of a free way of flower gardening is that we are able to put Lilies or any other flowers in it at any season that suits their planting, and that their bloom is welcome whenever it comes, and leaves us content with brown stems when it goes. If in the large flower garden we get some diversity of surface through groups of the rarer flowering evergreen shrubs, we have for these the very soil that our Lilies thrive in, and we break up in pretty ways these groups by planting Lilies among them, gaining thereby two

seasons of bloom, light and shade in the masses, and diversity of form.

The Iris, too, with its Orchid-like beauty and flower, and with a higher value of leaf than either Lily or Orchid, is in summer-flowering kinds fit to grace the flower garden with some permanent beds. Some will tell us that we may not do these things in the set flower garden under the windows, but from an artistic point of view this is not true and very harmful. There is no flower garden, however arid or formal in its plan, which may not be planted in picturesque ways and without robbing it of fine colour either. But to do that in the face of ugly plans we must be free to choose among all beautiful

Garden near Loch Kishorn, Ross. From a water colour drawing by F. Stainton.

things of the open air, not forgetting the best of the half-hardy plants that enjoy our summer—Heliotrope, great Blue Salvia, not forgetting Scarlet Geranium—no more than Cardinal Flower; annual summer flowers, too, from Sweet Pea to Stocks, Mignonette, and Pansy.

There is no reason for excluding the best of the summer flowers, from Hollyhocks to Sea Hollies, choosing always the best and those that give the most pleasure, and never coarse or weedy plants. For these the true place is the shrubbery and wild garden. It was the use of these coarse and weedy plants that did much harm in old mixed borders, when they were allowed to eat up everything. In those days they had not the choice of fine plants we now have, many of the finest we have coming in our day, like the Lilies of Japan and of Western America, and also the new Water-Lilies.

The tender summer flowers.

These last are above all flowers of the summer, and whenever there is any garden water, they add a distinct and enduring charm to the summer garden. We should not only represent them, but also the other water plants of the summer; and as shown in the chapter on the water garden, many handsome plants can be grown in rich soil that often occurs near water, massed in picturesque groups, like Loosestrife, Meadow Sweets, and Japanese Iris.

Orange trees in tubs, Tuileries.

THE SUMMER GARDEN.

CHAPTER XIX.

PLANTS IN VASES AND TUBS IN THE OPEN AIR.

In old days and for ages it was not easy nor always possible to many to have a garden in the open air. The need of mutual aid against the enemy threw people into closely packed cities, and even small towns in what might seem to us now the open country. In our own country, free for many years from external enemies, we have spread our gardens over the land more than others ; but in France farmers still go home to a town at night from the open and often homeless and barnless plain where they work. And so it came to pass that the land of Europe was strewn with towns and cities, often fortified, and many of those most able to enjoy gardens had to do the best they could with little terraces, walls, tubs by the door, and even windows. Often in Italy and other countries of the south of Europe and north Africa we see beautiful plants in tubs, on balconies, on flat roofs, and every imaginable spot where plants can be grown in a house in a street.

In many gardens plants in tubs are often used without good reason, as when hardy evergreen trees are grown in tubs; in front of the Royal Exchange in London there are hardy Poplars in tubs! Some may pursue this sort of gardening with advantage—first, those who have no gardens, and secondly, those who have and who may desire to put half-hardy bushes in the open air, for example, Myrtle or Oleander or Orange, which cannot be grown out of doors through-

out the year, and which yet may have fragrance or other charms for us. Many plants can be grown in the open air in summer which will not endure our winters, but which, placed in a cellar, dry room, or cool greenhouse, would be quite safe, and might then be put out of doors in summer. This way is commonly the case abroad with large Datura, Pomegranate, and Myrtles, and a great variety of plants such as we see put out in tubs in certain old palace gardens, like those of Versailles. What was called the orangery, and has almost disappeared from English gardens, was for keeping such plants alive and well through the winter, and in old times, if not now, had a very good reason to be.

There are many charming plants too tender for the open altogether that are happy in tubs, and may be sheltered in an outhouse or greenhouse through the winter—such as the Pomegranate and the Myrtle. The blue African Lily is often happy in tubs, its blue flowers when seen on a terrace walk having a distinct charm, but in England, generally, it must be kept indoors in winter.

Excellent use may be made of the great handsome oil-jars, which are used to bring olive oil from Italy to London, and the best things to put in them are half-hardy plants, which can be taken intact into the cool greenhouse or conservatory at the approach of frost.

Orange trees in tubs.

One of the most curious examples of routine and waste I saw in the Tuileries gardens on the last day of September 1896, when the Paris people were preparing for the Czar, and among their labours was the refurbishing of the old Orange trees in these gardens. There was a regiment of them set all along the gardens at regular intervals in immense and costly tubs, involving herculean labour to move in and out of the orangery. One might suppose this labour to be given for some beautiful end in perfecting the flower or fruit of the plant, but nothing of the kind; the trees are trained into mop heads, and when the plants make any attempt to take a natural growth they are cut sharply back, and often have an uglier shape than any mop. The ground was strewn with shoots of the orange trees which had been cut back hard. When the tree was in poor health, as it was often, the dark stems were the most visible things seen against the blue sky. This costly and ugly work is a survival of the time when the "golden apples" were a novelty, and it was not so easy to go and see them growing in the open air as it now is, and so what was worth doing as a curiosity hundreds of years ago is carried out still. Since the idea of growing these trees in such an ugly fashion arose we have had a noble garden flora brought to us from all parts of the earth, and it would be easy to take our choice of different ways of adorning this garden

in more artistic ways with things in the open ground, and of far greater beauty. If this thing at its best and done with great cost has such a result, what are we to think of the English imitations of it, such as those at Panshanger, in which hardy shrubs, like Portugal Laurels, are used, and sham tubs placed around them?

I saw the vast orangery terrace at Sans Souci in July 1897, and was deeply struck by its "ornaments" in tubs; the branches of the poor distorted trees like black skeletons against the summer sky showing that even with all the aids of artifice, no good result with tubbed oranges is got in northern Germany any more than in northern France. In the warmer south a little better result may be

Orangery, Holm Lacey, Hereford.

had from trees in tubs, but a few days' journey brings us to orange trees growing as freely and gracefully as willows in Tunis and Algeria and the countries round the Mediterranean.

The Poet's Laurel in tubs.

The Laurel is a winter garden plant over a large area of northern and central Europe, where the true Laurel (our gardeners and nurserymen erroneously give the name to the vigorous evergreen Cherry, of which we have too much in England) is a tender evergreen, requiring the protection of a house in winter. It is grown to a vast extent in tubs to place in the open garden, on terrace, or in courtyard during the summer. The cultivation of the Laurel for this purpose is carried on to such an extent that miles of handsome trees in various forms may be seen in one nursery.

There is no plant more worthy of it than the true Laurel, which we usually call the Sweet Bay, and those who cannot enjoy the plant out of doors, as we may in many of the warmer districts of the British Isles, would do well to grow it in tubs, in which state they may enjoy it both in winter and summer. It would be worth while growing it in the same way in cold and northern districts, where it is killed or much hurt in winter, and this sometimes occurs in parts of southern England. Near the sea it may flourish, and 20 miles inland be cut down to the ground, or so badly hurt that it gives no pleasure to see. In gardens where one may have fine groups of the tree on sunny slopes, we should never think of it in any other way, and no evergreen tree gives us more beauty when old and untrained and unclipped. Once the plants are stored for the winter, sometimes in sheds with little light, it is best to give no water. In the same way we may also enjoy the Laurustinus in districts where it is killed by frost out of doors, which in hard winters happens even in the southern countries. This is all the more unfortunate as this shrub and its varieties flower so prettily. If grown well in tubs we may flower them in the cool house and place them out of doors in summer.

CHAPTER XX.

BEAUTY OF FORM IN THE FLOWER GARDEN.

THE use in gardens of plants of fine form has taught us the value of grace and verdure amid masses of flowers, and how far we have diverged from artistic ways. In a wild state brilliant blossoms are often usually relieved by a setting of abundant green, and where mountain or meadow plants of one kind produce a sea of colour at one season, there is intermingled a spray of pointed grass and leaves which tone down the colour masses.

We may be pleased by the wide spread of colour on a heath or mountain, but when we go near we find that it is best where the long moss cushions itself beside the ling, and the fronds of the Polypody come up around masses of heather. If this be so on the hills, a like state of things is more evident still in the marsh or wood. We cannot attempt to reproduce such conditions, but the more we keep them before our eyes the nearer shall we be to success, and we may have in our gardens all the light and shade, the relief, the grace, and the beauty of natural colour and form too.

A recent demand for £2000, for the building of a glass house for Palms for the sub-tropical garden of Battersea Park, throws light on the costly system of flower gardening in this and other public gardens. This was only a small part of the cost of keeping the tender and half-hardy plants in a glass nursery and was not a demand of money for a Palm-house which the public might enjoy; but was to be part of the expenditure on some glass-

Hardy Palm in the open, Cornwall.

sheds which they would never see, and were merely to grow the plants to be put out for a few months in summer.

In our flower gardens Palms can only be seen in a small state; nor can they in pots and tubs give one any idea of the true beauty of the Palm on the banks of the Nile or the Ganges. But, worse than this, the system leads to the neglect of the many shrubs and trees of the northern world, which are quite as beautiful as any Palm. The number of public gardens that are being opened in all directions makes it all the more important that the false ideal they so often set out should be made clear. The concentration of so much attention and of the greater part of the cost on such feeble examples of tropical plants as can be grown in this country out of doors for a few months in the summer has a very bad effect. The things which may be grown to perfection in the open air in any country are always the most beautiful, and should always have the first place in our thoughts.

Many plants that are quite hardy give fine effects, such as the Aralias, herbaceous and shrubby; Aristolochia among climbers; Arundo, hardy and very pretty beside water; the hardy Bamboos of Japan and India; these last increasing in number, and are very distinct and charming, and often rapid growers in genial parts of the country, especially near the sea. A considerable number will probably be found hardy everywhere. The large leaved evergreen Barberries are beautiful in shade, and grouped in picturesque ways effective for their noble leaves as well as flowers.

The Plume Poppy (Bocconia) is handsome for its foliage and flowers, even in ordinary soil. A great number of the larger hardy Compositæ (Helianthus, Silphium, Senecio, Telekia, Rudbeckia) are fine in leaf, as are some of the Cotton Thistles and plants of that family. The common Artichoke of our gardens and its allies are fine in form of leaf and flower, but apt to be cut off in hard winters in some soils. The Giant Fennels are most graceful early leafing things, thriving admirably in sandy and free soils. Plantain Lilies (Funkia) are important, and in groups their foliage is excellent. The Pampas Grass is precious where it grows well, but in many districts is gradually killed by hard winters. Where it has the least chance, it should be planted in bold masses. The great leaved Gunneras are superb near water and in rich soil. The giant Cow Parsnips are effective, but apt to take possession of the country side, and are not easily exterminated, and, therefore, should be put in with a sparing hand in islands and rough places only. The large Indian evergreen Rockfoils are fine in form, and in their glossy foliage are easily grown and grouped in picturesque ways, and they are very hardy.

Pampas Grass in a Sussex garden.

In sandy and free soils a handsome group of beautiful leaved things may be formed of Acanthus. The new Water-Lilies will help us much to fine foliage, especially in association with the many graceful plants, including certain hardy Ferns which may be grown near water, like the Royal Fern, which in rich soil and shade makes leaves as fine as any tropical Fern.

Acanthus.

As to arrangement, the best beds or sets of beds are those of the simplest design. Shelter is a great aid, and recesses in shrubberies or in banks clothed with foliage, form the most fitting background for beds or groups to nestle in. Avoid Musas or Caladiums, the leaves of which tear to shreds if winds cannot be shut out, and also plants that look unhappy after a cold night or two. Make the most of plants that grow under nearly all conditions, and use any dell overhung by trees for half hardy fine-leaved plants.

Shelter.

As an example of fine form from hardy plants, we cannot do better than give the New Zealand Reed (Arundo conspicua) a place. This handsome Grass produces its blossom-spikes earlier than the Pampas and is more elegant in habit, the silky white tufts bending like ostrich plumes at the end of slender stalks.

The first and the last word to say about form is, that we should try and see beauty of form everywhere among plants that suit our climate. The willows of Britain are as beautiful as the olives of Italy, or the gum trees of Algeria and the South of France; so that, although the sub-tropical as a system of flower gardening has failed throughout our country generally, and can only be carried out well in the south of England and the warmer countries of Europe, we need not deprive ourselves of the enjoyment of the finest forms near and in our gardens. The new Water-Lilies take us to the waterside, and there are many good forms even among our native flowers and weeds. The new hardy Bamboos are also very graceful and most distinct, of which several of the highest value promise to be hardy in our country. The common hardy Japan Bamboo has thriven even in London, and it is not only waterside or herbaceous plants of all kinds we have to think of, but the foliage of trees, which in many cases is quite as beautiful as that of the dwarfer plants. The hardy trees of North America are many of them beautiful in foliage, from the Silver Maple to the Scarlet Oak, and Acacias from the same country have broken into a number of beautiful forms; some are as graceful as Ferns. These trees, if obtained on their own roots, will afford us fine aid as backgrounds. The Aralias of Japan and China are quite hardy and almost tropical in foliage,

Beauty of form.

The Tall Arundo: Golden Field. Liphook.

while the beauty that may be got from Ferns is very remarkable indeed, our native Royal Fern being of noble proportions when well-grown in half-shady and sheltered places in deep soils, as at Newick Park, and the same is true of all the bold American Ferns, plants too often hidden away in obscure corners, whereas the boldest of them should be brought out in our cool British climate to form groups on the lawn and turf. This applies also to our larger native Ferns, which, massed and grouped away from the old-fashioned fernery, often tell better.

Gunnera and Bamboo.

During recent years the most graceful things and of permanent value in our gardens are Bamboos.

Bamboos at Kew.

The Bamboo garden formed a few years ago at Kew has proved so well adapted for the plants, that a few notes as to its position and soil may be of value to the numerous readers who intend to grow the Bamboos. A position was selected in the middle of a wood near the Rhododendron dell, and taking advantage of a hollow already existing there, the ground was lowered some 5 feet or 6 feet below the surrounding level. A belt of shrubs on the north and east sides, between the trees and the Bamboos, together with the low level, affords them a shelter almost as perfect as can be furnished out of doors. Even the bitterest north-easter loses a good deal of its sting before

Group of Yuccas at Abbotsbury, Dorset.

it reaches these Bamboos. What the cultivator of Bamboos has most to fear is not a low temperature merely—most of the Bamboos will stand 20° or 25° of frost in a still atmosphere—but the dry winds of spring.

Bamboos like best a free, open, sandy loam, and the greater part of the soil at Kew is poor and sandy; but there is, in one part, a belt of good stiff loam extending for a few hundred yards, and it is on the border of this that the Bamboo garden is situated. At the commencement the ground was trenched to a depth of 3 feet, and enriched with leaf-soil, and where necessary lightened with sandier soil. These plants can scarcely be over-fed, and in well-drained soil can scarcely be over-watered, and an annual mulching with rich manure is of the greatest advantage.

Transplanting Bamboos.

In regard to transplanting, the best time to plant is in spring, when growth begins. The renewal of growth is indicated by the unrolling of the young leaves, which may be in April or May, according to the winter. Bamboos are very difficult to kill outright, but treated improperly they are apt to get into a stunted condition, which it takes them a long time to recover from. I would advise those who wish to try these plants to obtain them from the nurserymen in autumn or winter, if they have been grown in pots, and to give them greenhouse treatment till the end of May, when they can be planted out in a growing state; but, on the other hand, if they have been planted out in the nursery ground, not to have them sent off till the end of April or later, when they can be set out at once.

Torch lilies.

CHAPTER XXI.

THE FLOWER GARDEN IN AUTUMN.

Now who hath entered my loved woods,
And touched their green with sudden change?
Who blanched my Thistle's rosy face,
And gave the winds her silver hair?
Set Golden-rod within her place,
And scattered Asters everywhere?
Lo! the change reaches high and wide,
Hath toned the sky to softer blue;
Hath crept along the river side,
And trod the valleys through and through!

RECENT additions to our garden flora have made such a difference to the flower garden in the autumn that it may be even more beautiful than the spring, rich as that is in flowering trees and shrubs.

It would be easy to give the names of many things that are to be found in flower in gardens in autumn, but that is not nearly so important as getting an idea of many of the nobler class of plants which may be effectively used at that time, no matter almost what the season may be. Certain plants may depend for success on soil and situation, or even climate, even when they are hardy, as the Fuchsia, which is so much better in the coast and west country gardens; but, when everything is left out that wants any extra culture or advantages of climate and soil, there remain for every garden many beautiful things for the garden in the fall.

Of those that can generally be trusted for our country, I should say that, of all the gains of the past generation, the brilliant groups of plants of the Sunflower order were the finest, handsomest, and most generally useful for their disregard of any weather likely to

occur. The masses of fine form and colour one may have with these when grouped in picturesque ways are remarkable. With the Sunflowers are included not only the Helianthus strictly, of which there are so many good kinds now, but also other showy Prairie flowers of the same natural order, which approach them in character, such as Rudbeckia, Silphium, Helenium, and other vigorous families of this numerous tribe of plants. Many of these thrive in any soil, and make their way in rough places and among shrubs, or in parts of gardens less precious than those we keep for our best flowers.

But the most precious, perhaps, of all flowers of autumn for all parts of the country, grouped in an artistic way, are the hardy Asters of the American woods, which lived for ages in our gardens in mean bundles tied up in mixed borders like besoms. The best of these massed and grouped among shrubs or young plantations of trees, covering the ground, give an effect new and delightful, the colour refined and charming, and the mass of bloom impressive in autumn. Some kinds come in flower in summer, but nearly all the loveliest Asters in colour flower in September and October, and no such good colours of the same shades have ever been seen in the flower garden.

Starworts.

It is not only the Asters of America we have to consider, but the still more precious Asters of Europe, which by their extraordinary beauty make up for their rarity. Professor Green, of California, who knows the American Aster well, on seeing here a plant of Aster acris, said, "We have none so beautiful as that." This is the Aster with the beautiful blue purple flower which is so effective when massed. Under different names this plant is grown in nearly allied forms, some having specific names, enabling us to enjoy plants of different stature but the same high beauty, flowering at slightly different times, but always at their best in autumn. With these should be grouped the handsome large Italian Aster, which also has its half-a-dozen forms, not differing much, but precious for their variety, and among the prettiest plants ever seen in our gardens.

We give the first place to these because they are almost independent of soil or cool climates. Hardy as the Chrysanthemum is, the same cannot be said for it, because, as an outdoor flower, it must have a sandy soil and warm positions, and cool soils, even in southern England, are against it. In warm and free soils, like that at Hazlemere, one may see delightful results from the cottage Chrsyanthemums, which are very pretty where they can be grown against low walls or pailings. Other plants which are of the highest value in endurance and freedom of bloom are the Heaths of our own

Starworts.

islands. Their effect is good, summer and winter; but in autumn some of them flower in a pretty way, particularly the Cornish and the little Dorset Heath, and the Irish Heath in its purple and white forms.

Among the half-hardy plants of the garden perhaps the first place belongs to the Dahlia, which was always a showy autumn flower, but of late has become more precious through the beauty of what are called Cactus Dahlias, which are so much better in form and colour than the roundheaded Dahlias.

The hardy Fuchsia is in the warmer and milder districts often very pretty in autumn, especially where it is free enough to make hedges and form large bushes; but in cold and midland places the growth is often hindered by hard winters. Gladiolus is a splendid flower of the south, but coming more into a class of flowers requiring care, and if they do not get it soon disappearing, liable also to disease, and, on the whole, not so precious as showy.

The addition of Lilies to our garden flora within the past generation has had a good effect on the autumn garden. Where the finer kinds are well grown, the varieties of the Japanese Lilies, with their delicate and varied colours, are splendid autumn flowers for the open air. The Anemones, usually flowers of the spring, come in some forms for the autumn garden, particularly the white and pink kinds. The handsome Bignonia, or trumpet creeper, is precious on all warm soils, but generally it has not done so well with us as in France. Several kinds of Clematis come in well in autumn, particularly the yellow and the fragrant kinds. The Pentstemons are handsome and very valuable in warm soils and districts where they may live out of doors in winter, but in London districts they are not so good. A splendid autumn flower is the Cardinal Flower, and happy should be those who can grow it well. It fails in many gardens in loamy soil, and where there is insufficiency of water, being a native of the bogs, and thriving best in moist and peaty soil.

Japanese Lilies.

These are extremely effective in autumn, and in warm soils they are often among the handsomest things, but, not being northern plants, are unable to face a northern winter. Happily this is not so with the beautiful new Water-Lilies raised by M. Latour Marliac, which are hardy in the open air, even with such weather as that of the early part of 1895. Though perhaps the best bloom comes in summer, they flower through the autumn, varying, like the Tea Rose, according to the weather, but interesting always up to the end of September. We should also name the Hollyhock, which is, however, so liable to accident from disease,

Torch Lilies.

and those who care for it will do well to use seedling plants. Seedsmen are now saving seed of different colours which come fairly true.

A handsome group of vigorous perennials for the autumn are the Polygonums. Some of the large kinds, such as the Japanese and Indian, are not showy, but massed picturesquely on margins of a wide lawn, and on pieces of stiff soil which are useless in any garden sense, are effective for many weeks in autumn, as the flower is pretty, and the foliage of one kind is often fine in colour.

Thus we have a noble array before coming to some old flowers of autumn, the Meadow Saffrons or "autumn Crocuses," many of the common kind of which fleck the meadows in autumn. There are other kinds, too, which of recent years have been added in greater numbers to our gardens, some of them pretty, and the double kinds prettier than most double flowers. As they grow naturally in meadows, in turf is a delightful way to have them in gardens, though new and rare kinds should be grown in nursery beds until they are plentiful. They are not difficult to grow, and should often be placed in moist grassy places.

Autumn Crocus.

The true autumn Crocuses are very little seen in gardens, but are most delicate and lovely in colour. Coming for the most part from sunny lands, they do best in light soils: but some, like C. speciosus, grow in any soil, and all are worth growing. Among the best is C. nudiflorus, naturalised in Britain, in colour one of the most lovely flowers. To get little pictures from such plants we must have them happy in grass or among dwarf plants, and on sunny banks and grassy corners of the lawn or pleasure ground.

No doubt severe frosts may destroy any kind of flower soon, but for those who live in the country in the autumn it is something to have bright colours and beautiful plants about them late, and these are afforded as well by the Starworts and other hardy plants in October, as the fairest flowers that come in June. When we have a severe September about London, many gardens of tender plants are shorn of their beauty, whereas, the hardy flowers go on quite untouched for a month or six weeks later, and not merely bloom, as do Heliotrope and Geranium, in a fine autumn, but as the meadow flowers in summer, with vigour and perfect health. Therefore, it is clear that, whatever the charms of tender plants may be for the summer, those who live in the country in autumn are unwise to trust to anything but the finer hardy plants.

Thus, without touching on rarities or things difficult to grow, we have a handsome array of beauty for the autumn garden, even leaving out of the question the many shrubs and trees which are beautiful in

foliage or fruit in autumn, and there are many of these in any well-stored garden.

Some hardy and half-hardy Plants blooming in British Gardens. September—October.

Abutilon
Aconitum
Agapanthus
Ageratum
Amaryllis
Anagallis
Anemone
Arnebia
Aster
Berberidopsis
Bignonia
Brugmansia
Calceolaria
Campanula
Canna
Cassia
Ceanothus
Celsia
Centaurea
Chrysanthemum
Clematis
Colchicum
Convolvulus
Coreopsis
Crocus
Cuphea
Cyclamen
Dahlia
Delphinium
Desmodium
Dianthus
Diplacus
Diplopappus
Eccremocarpus
Erica
Escallonia
Fuchsia
Gaillardia
Geum
Gladioli
Godetia
Gypsophila
Helenium
Helianthus
Heliotrope
Hieracium
Hollyhock
Honeysuckle
Hyacinthus
Hypericum
Iberis
Impatiens
Lantana
Laurustinus
Lavender
Liatris
Lilium
Linaria
Linum
Lobelia
Lonicera
Lupin
Lychnis
Lythrum
Magnolia
Marigold
Matthiola
Mignonette
Mimulus
Montbretia
Nicotiana
Nigella
Œnothera
Pampas Grass
Pansy
Papaver
Pentstemon
Petunia
Phlox
Phygelius
Physalis
Physostegia
Plumbago
Polygonum
Prince's-feather
Pyrethrum
Rose
Rudbeckia
Salpiglossis
Salvia
Scabious
Sedum
Senecio
Silene
Silphium
Snapdragon
Solanum
Solidago
Statice
Strawberry
Sweet Peas
Sweet William
Telekia
Trachelium
Tradescantia
Tritoma
Tritonia
Tropæolum
Tuberose
Valerian
Venidium
Verbascum
Verbena
Veronica
Viola
Yucca
Zephyranthes
Zinnia

Belladonna Lily and Zephyranthes, Kew.

Winter Jasmine.

CHAPTER XXII.

THE FLOWER GARDEN IN WINTER.

THE idea that winter is a doleful time for gardens must not be taken seriously even by those who only grow hardy things out of doors; because between the colour of the stems and leaves of trees, or shrubs, there is much beauty left, even in winter, and in mild winters good things venture to flower. Mr Moore, of Dublin, wrote to me in midwinter:

> After a very open winter we have had a sharp snap of cold, and to-day (Jan. 20) it is blowing a bitterly cold storm from the east. To-day has opened Winter Sweet and Winter Honeysuckle; Iris Stylosa, blue and white, Christmas Roses and Winter Heliotrope are beautiful; in fact, I never saw them so good.

But even where, owing to hard winters, we cannot enjoy our flowers in this way, there is much beauty to be had from trees and shrubs, evergreen and summer-leafing. Hitherto we have been all so busy in planting evergreens in heavy masses, that the beauty one may realise by using a far greater number of summer-leafing shrubs and fine herbaceous plants among the evergreens is not often seen.

Gardens are too often bare of interest in winter, and some of the evil arises from the common error that plants are not worth seeing in winter. The old poet's wail about the dismal winter is a false one to those who have eyes for beauty. Woods are no less beautiful in winter than in summer—to some they are more beautiful

for the refined colour, tree form and the fine contrast of evergreen and summer-leafing trees. In any real garden in winter there is much beauty of form and colour, and there are many shrubs and trees which are beautiful in the depth of winter, like the Red and Yellow Willow and Dogwoods, and even the stems of hardy flowers (Polygonum). The foliage of many alpine plants (Epimedium) are not only good in colour, but some of these plants have their freshest hues in winter, as the mossy Rockfoils of many kinds. In the country garden, where there are healthy evergreens as well as flowering shrubs and hardy plants, how much beauty we see in winter, from the foliage of the Christmas Roses (Helleborus) to the evergreen Barberries! The flower gardener should be the first to take notice of this beauty and show that his domain as well as the wild wood might be interesting at this season.

Keep the stems.

The stems of all herbaceous plants, reeds, and tall grasses in winter, are very good in colour, and should always be allowed to stand through the winter and not be cut down in the fidgety-tidy way that is so common, sweeping away the stems in autumn and leaving the surface as bare and ugly as that round a besieged city. The same applies to the stems of all waterside and herbaceous plants, stems of plants in groups often giving beautiful brown colours in many fine shades. Those who know the plants can in this way identify them in winter as well as in summer—a great gain in changing one's plantings and in increasing or giving away plants. Moreover, the change to all these lovely browns and greys is a distinct gain as a lesson in colour to all who care for refined colour, and also in enabling us to get light and shade, contrasts and harmonies in colour. If these plants are grouped in a bold and at the same time picturesque way, the good of letting the stems remain will be far more evident than in the weak "dotty" way generally practised, the seed pods and dead flowers of many plants helping the picture. There is no need to remove any stem of an herbaceous plant until the spring comes and the growing shoots are ready to take the place of the brown and dead ones.

Evergreen plants.

Apart from our evergreen shrubs, so happy as these are in many parts of the British Isles, there are the oft-neglected evergreen rock and herbaceous plants, such as Christmas Roses Barrenworts, Heuchera, Alexandrian Laurel, the bolder evergreen Ferns, and the large Indian Rockfoils, Saxifraga, or Megasea. In early winter these fine evergreen plants become a deeper green, some forms getting red. They have been in our gardens for years, but are seldom made a right use of. Thrown into

borders without thought as to their habits, and soon forgotten or overshadowed by other things, we never get any expression of their beauty or effect in masses or groups. If grouped in effective ways, they would go on for years, giving us fine evergreen foliage in winter.

The Alexandrian Laurel (Ruscus racemosus) is a most graceful plant, somewhat shrubby in character, with glossy dark green leaves and Willow-like shoots. It is most free and happy on peaty and friable soils, growing 3 feet or 4 feet high; in winter the effect is very good, and it is valuable for the house, to give a graceful and distinct foliage to accompany various flowers at this season. In clay soils it may want a little encouragement, and it thrives well in partial shade.

Christmas Rose.

A noble winter flower where well grown, and lovely in its wild state in the foot-hills of the Alps, in Italy, and countries near; happily, it flowers in our gardens very well also, varying a little in its ways. The stout kind (H. maximus) flowers in the early winter in front of walls and in sheltered spots, and is hardy in ordinary soil but best in chalky soils. The true Christmas Rose (H. niger) is a little more particular; it thrives much better on chalky and warm soils, and grows best on a northern aspect or shaded place; and even in its own country the finest plants are found in places where it escapes the sun. These are true winter flowers; but hardly less so are the Lenten Roses, or forms of the Oriental Hellebores. In the southern counties, five seasons out of six, no weather stops them from being fine in flower before the winter is past; they often bloom in January and make a handsome show in February, and they are the finest of all flowers to end the winter.

Algerian Iris.

The Algerian Iris flowers in warm sandy borders in the country around London, and in mild winters is a great treasure, not merely for its beauty in warm sheltered corners, but also its precious qualities for the house, in which the flowers, if cut in the bud state, open gracefully if placed in basins in moss. In warm and sheltered gardens, on warm soils, others of the winter blooming Iris of the East may be grown, while in such gardens, in the south at least, the good culture of the sweet Violet will often be rewarded with many flowers in winter.

A beautiful Italian Crocus (Imperati) often flowers in winter in the southern counties at least, as, where people take the trouble to get them, do C. Sieberi, Dalmaticus, Etruscus, Suaveolens and others. This habit of some of the winter flowers of the south of Italy and Mediterranean region to open in our green and open winters should

be taken advantage of. The fate of these Crocuses is interfered with by the common field vole, and the common rat is also a great destroyer of the Crocus. Where these enemies do not prevail, and the soil favours these charming winter and early flowers, we can grow them, not only in the garden, but on the turf of sunny meadows and lawns in which these beautiful Crocuses will come up year after year in winter and early dawn of spring.

Shrubs and trees in the winter garden.

The Winter Sweet (Chimonanthus fragrans) is in bloom often before Christmas in the country around London, and every shoot full of fragrant buds opening on the trees against south and west walls. The many bright berries which adorn our country, both in the wild land and in well-stored gardens, are rather things of the autumn. By mid-winter the birds are apt to clear them off Wild Roses, Briers, Barberry, and Thorns, American as well as British. The Pyracantha, however, stays with us late; and Hollies, Aucuba, Cotoneaster, Snowberry, and the pretty little hardy Pernettya, from the Straits of Magellan, which has broken into such variety of colour in our country, are among those that stay late. The bright berries may fail us in hard winters, but the colour of the trees and bushes that bear them never does; and the red and yellow Willow, Dogwood, Thorns, Alders,

Winter Sweet, drawn by H. G. Moon from shoots gathered at Gravetye, New Year's Day, 1895.

Birch, and many Aspens and Maples, give fine colour when massed or grouped in any visible way. Still more constant are the flowering shrubs of winter, where in sheltered gardens and warm valleys any attention is given to them—Winter Jasmine, Winter Sweet, Winter Honeysuckles, Wych Hazel, Japan Quince in many forms, Laurustinus, several Heaths, Arbutus, at least one variety of Daphne Mezereon, the pale Southern Clematis (Calycina) happy in our warmer gardens, Eleagnus, the Nepal Barberry, a Chinese Plum (P. Davidiana), and the catkin bearing Garrya and Hazel. The Winter Honeysuckles are a bit slow in some districts, and a better result is got from them on free soils, and from walls in sheltered corners, an immense difference resulting if we can have them near the sea, with its always genial influence in favour of things from climates a little warmer than our own. In heavy soils in the inland country and around London the Laurustinus often comes to grief or fails to flower well, but has great beauty in seashore districts, and often on sandy and gravel soils is charming, even in inland places.

The hardy and beautiful Winter Jasmine, which is so free on cottage walls and wherever it gets a chance, is most precious, owing to the way it opens in the house, especially if gathered in the bud state. If we have it in various aspects, the sun scorching the shoots after a frost and killing the flowers may be avoided. The plant is so free that, if the shoots are allowed to hang down, they root in the ground like twitch, and therefore it can be increased very easily, and should be seen in visible groups and lines, and not only on the house or on walls, as in the milder districts it forms pretty garlands and bushes in the open.

When the Dogwood has lost all its leaves and is a deep red by the lake, and the Cardinal Willow has nearly taken its winter colour, the dwarf autumn blooming Furze flowers far into winter, and is in perfect bloom on the drier ground, telling us of its high value where dwarf vegetation is desired. It is seen in abundance on many hills and moors, but is hardly ever planted by design. A good plant for all who care for low foreground vegetation, it may be planted like Common Furze, but by far the best way is to sow it in spring in any bare or recently broken ground. The Common Furze, too, of which the season of bloom is spring and mild winters, often flowers at Christmas; odd plants here and there in the colonies of the plant bearing quite fresh flowers; and if from the nature of these native shrubs they do not find a place in the flower garden, there are few country places where they may not be worth growing not far from the house, in covert or by drives or rough walks, as no plants do more to adorn the late autumn and winter.

Furze.

These are excellent for the winter garden in their brown and grey tuftiness. The forms of the common Heather and the Cornish Heath are best for rough places outside the flower garden, but some kinds of Heath are among the best plants for the choicest winter garden of the open air, particularly the Portuguese Heath (E. Codonodes), which in mild winters is of great beauty; also a hybrid between the Alpine forest Heath (E. carnea) and the Mediterranean Heath, with the port and dense flowering habit of the Alpine Heath and the earlier bloom of the Mediterranean Heath. The Alpine forest Heath, the most precious of all hardy Heaths, often flowers in mild winters, and in all winters is full of its buds ready to open.

Hardy Heaths.

So far we are speaking of districts where there are few advantages of climate; if we include others there might be more flowers in the winter garden, and many varied flowers are seen in gardens in the Isle of Wight, and many other favoured gardens not always confined to the Southern part of England and Ireland: the Cornish, Devon, South Wales or Cork Coasts being far more favourable.

If the snow shrouds the land, all's well, as the leaves of evergreen plants, like Carnations, are at rest in it, and some plants are all the better for the peace of the snow for a time. Even if our eyes are not open to the beauty of the winter let us make the flower garden a real one for spring, summer, and fall, as if it were true that in winter

> The year
> On the earth her deathbed, in a shroud of leaves dead,
> Is lying.

But it is not true: there is in winter no death, every root works and every bud is active with life; the wooded land is tender with the colour of Alders by the busy wintry stream and Birch on the airy hill, Reeds fine in colour round the lake or marsh. If even our wild marsh or rough woodland be beautiful in winter, our gardens with the flora of three continents to gather from, should not then be poor in beauty. No! Winter is not a time of death, but of happy strife for plants and men.

> Until her
> Azure sister of the spring shall blow
> Her clarion o'er the dreaming earth, and fill
> (Driving sweet birds like flocks to feed in air)
> With living hues and odours plain and hill.

CHAPTER XXIII.

WATER GARDENS.

It is not only from the mountain's breast dyed with Violet and Gentian, the Sunflower-strewn prairie of the north, or the sunny fields where Proserpine gathered flowers, that our garden flora comes. River and stream are often fringed with handsome plants, and little fleets of Water-Lily—silvery fleets they look as one sees them from the bank—sail on the lakelets far away in North America and Asia. One need not go so far to see beautiful plants, as our own country rivers and back-waters of rivers possess many. Our gardens are often made about towns where there are few chances of seeing our native water plants, but by the back-waters of rivers and by streams in many situations, and by lakes like the Norfolk Broads one may often see as handsome plants in these places, and also in the open marsh land, as in any garden, and some that we do not often see happy in gardens, such as the Frogbit, the Bladderwort, and Water Soldier.

In artificial waters.

Where, as often is the case in artificially made ponds, the margin, of the water is not the rich deep soil that we have by the Broads and by the sides of rivers, which themselves carry down deep beds of rich soil, a good way is to plant the mud which we take out of the pond around its sides a little above and below the water-line. This will encourage a rich growth of such Reeds as are found beside natural waters. Water with a hard, naked, beaten edge and little or no vegetation is not good to look at, and a margin of rich living plants is better for fish and game as well as for effect. The waterside plants one may establish in that way are worth having and give good cover for duck.

The most beautiful of all water gardens are the river and stream gardens, as their form is so much better than anything we can make and the vegetation is often good even without care. With a little thought we can make it much more so, and in our river-seamed land there are so many charming opportunities for water-garden pictures.

Upper part of my Water Garden. From a photograph by Sir Henry Thompson, August. 1896.

The water margin offers to lovers of hardy flowers a site easily made into a fair garden. Hitherto we have used in such places aquatic plants only, and of these usually a very meagre selection; while the improvement of the waterside may be most readily effected by planting the banks near with vigorous hardy flowers, as many of the finest plants, from Irises to Globe Flowers, thrive in moist soil. Waterside plants have this advantage over water plants that we can fix their position, whereas water plants spread so much that some kinds over-run others. The repeating of a favourite plant at intervals would mar all; groups of free hardy things would be best: Day Lilies, Meadow Sweets, tall Irises, which love wet places; Gunnera, American swamp Lilies in peaty soil, the rosy Loosestrife, Golden Rods, Starworts, the Compass plants, Monkshoods, giant Knotworts, Moon Daisies, the Cardinal Flower, the common Lupine—these are some of many types of hardy flowers which would grow freely near the waterside. With these hardy plants, too, a variety of the nobler hardy Ferns, such as the Royal Ferns and Feather Ferns, would associate well.

Waterside plants.

Water plants of northern and temperate regions associated with our native water plants, add much beauty to a garden. If the soil be rich, we usually see the same monotonous vegetation all round the margin of the water, and where the bottom is of gravel there is often little vegetation, only an unbroken, ugly line of washed earth. A group of Water-Lily is beautiful, but Water-Lilies lose their charm when they spread over the whole of a piece of water, and even waterfowl cannot make their way through them. The American white Water-Lilies (Nymphæa odorata and N. tuberosa) are hardy, and of recent years much beauty has been given our water plants in the hybrid hardy Water-Lilies raised by M. Latour Marliac, who has added the noble forms and the lovely colour of the Eastern Water-Lilies to the garden waters of northern countries.

Water plants.

Even where natural ponds exist it frequently happens that the banks of the pond, as well as the water itself, are either bare, or are covered only by the rankest weeds. The ponds chiefly considered here are those mostly formed without cement, by natural flooding from a brook, streamlet or river. If the water supply is abundant and continuous, it matters little whether a portion of the water is wasted by percolating through the sides of the pond, but when only a small supply can be had the bottom and sides of the pond must be either concreted or puddled with clay. It often happens that when the excavations for a pond are completed

Forming the water garden.

the bottom is found to consist of impervious clay, but the sides consist of ordinary soil, which would allow a large portion of the water to waste. In such cases the best way out of the difficulty is the cutting of a narrow trench, say 18 inches wide, to a depth a little beyond the surface of the natural clay subsoil. This trench, which should skirt the whole pond at some little distance from the actual edge of the water, is then filled with clay "puddle" till just above the water-line and forms an effective remedy against waste, while the water-soaked soil between the trench and the actual outline of the pond forms an excellent home for all kinds of marsh plants of the bolder type. The outline of a pond is of the utmost importance. Regular curves of circles or ovals are utterly out of place

Riverside plants in front of an old manor—Levens.

and look ridiculous in a landscape with naturally undulating ground.

Margins of water.

The water-soaked margins of our ponds and brooks would furnish a home for many graceful fine-foliaged and flowering plants. Rheum Emodi from the Himalayas, Rheum palmatum from Northern Asia, and the Siberian Rheum undulatum are effective plants for the waterside. Of an entirely different type is the noble Arundo donax. The Pampas Grass (Gynerium argenteum) and its early flowering companion, Arundo conspicua, from New Zealand, may also be mentioned as graceful plants for the waterside. Much dwarfer, but also effective, is the Elymus, with broad glaucous foliage contrasting well with the fine deep green foliage cyperus longus, a graceful native.

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The plants just mentioned as suitable for the waterside are valued mostly on account of their foliage. But among flowering plants also handsome varieties may be found that might with great advantage be used for decoration at the waterside much oftener than is at present the case. Few things are brighter than the brilliant flowers of purple loosestrife. Groups of Iris Kæmpferi and the bolder Iris, also look exceedingly well on the margin of a pond, and the "Royal" Fern

Flowering plants.

Natural grouping of waterside plants.

(Osmunda regalis) delights in that position. Senecio japonica grows really well only when its roots can find abundance of moisture; its large deeply-cut leaves are as handsome as its deep yellow flowers, 4 inches across, and borne on a stem 3 feet to 4 feet high. Spiræa gigantea, which bears its flowers on stems 5 feet to 6 feet above the ground. Spiræa Aruncus, though not so tall, is, nevertheless, suitable, as are also its smaller, but still companions, Spiræa palmata, and others.

For many years I have planted these Lilies with pleasure and happy results, and, in view of their importance, their story is worth telling. Their discovery by a modest amateur in a small town near Bordeaux was the best ever done for hardy flowers. It seemed doubtful at first if these Water-Lilies, showing as they do such lovely colours, could be hardy; as it happens, they are as hardy as the great Water Dock by the lake side. In all these years many

Water-Lilies at Gravetye.

groups have been in position without change or attention. No preparation whatever was made for planting beyond sinking in the ordinary mud which is washed into the lake by the woodland streamlets. They were planted tied to pieces of stone dropped into the water, or sometimes in a small wicker basket weighted with stones. From some of the groups many scores of flowers might be gathered at one time: perfect blooms fine in colour. The earlier kind sent out, some of them, were not decided as to colour, but of late years they are fine in that way. The lake is rather deep, 12 feet or more in places, so there was little chance of attending to the "toilet" of the plants, as may be done in shallow lakelets or fountain basins in thinning out the plants, which is certainly a gain. Here we had no means of doing this, except by emptying the lake, which was not done except on rare occasions. The plants are such vigorous growers that an occasional thinning out is to be desired.

Enemies of Water-Lilies.

The only thing that has really mattered has been that great enemy of Water-Lilies, the water-rat. He never goes far from the waterside, but is as destructive there, enjoying himself very much carrying the flowers to the bank and cutting the centres out at his leisure. For many years we set traps for him, with some success, but since the war we have had to discontinue this, with the result that many of the blooms disappear. Shooting and trapping is essential in this case. Another enemy is the water-hen, which comes in shoals out of the woods. Though not nearly so bad as the water-rat, she also must be kept down.

A mistake is any kind of artificial rearing of ducks in ponds where Water-Lilies are grown. The heron occasionally visits us, and also the swan, the kingfisher, and a few small birds; but none of them do harm to the Water-Lilies. The case is different when ducks are artificially reared and bred, for then farewell to all the beauty of the flowers. In one or two instances I have given way to this in the interests of shooting friends, but never again!

Many water plants will grow almost anywhere and bid defiance to game or rats, but the newer and rarer Water-Lilies will not show half their beauty if they are subjected to the attacks of certain animals. They may, indeed, when young be easily exterminated by them, and even when old and established the common water-rat destroys the flowers, and, taking them to the bank, eats them at its leisure. When the plants are small, the attacks of the common moorhen and other water-fowl may mean all the difference between life and death to a Water-Lily. Perhaps, therefore, the first thing to be done in establishing these plants is to put them in some small pond apart from the rougher waterside plants, and especially where

they will be safe from the attacks of the water-rat and other creatures which cannot be kept out of ponds fed by streamlets. By these and river banks or back-waters water-rats are hard to destroy, and guns, traps, ferrets, or any other means must be used. The common brown rat is not so fond of these flowers as the true water rat, but it is so destructive to everything else, that it is essential to destroy it at the same time, as it often abounds near water. The water or moor-hen is continuously destructive to all the Water-Lilies, pecking at the flowers until mere shreds are left, and no one can fairly judge of the rare beauty of these plants where these birds are not kept down.

Waterside trees.

Our island homes, with a vast storm-vexed shore-line, abounding rivers and beautiful inland waters, offer interesting work to the planter. And not without difficulties; but these difficulties are pleasant to remember when we get over them, as we may. Wild shores, often bare and free to the wild, sharp kisses of the sea; innumerable lovely sites now desolate will in time invite men to plant: hence the importance of good work on such ground. And we may bear in mind its great advantages in some ways, as we get these good things talked of in books, but seldom seen in home landscape work, breath, air, repose, graceful contours of earth, fair backgrounds of Willow and many trees. Few need be told of the beauty of our inland waters, loved for many reasons. Yet it is when we think of lands without the gift of water, such as some parts of our own Eastern and Southern country, and the land around Lyons in France and about Berlin, that we feel more than ever the precious gain of abounding rivers, lakes like those of England and Western Ireland and noble estuaries and bays of many parts of our islands. Even those who care for good planting in ordinary ground are apt to neglect the waterside, and we see much land near it without any of the lovely effects which well chosen river or lake-side trees give. The best waterside trees are often those of our own country and Europe, easily procured, fine in colour and good in form. There are certainly gains in waterside position which we do not find elsewhere; we get air and light, shade and breadth, from the water itself, which prevents the dotting of plants over the whole area. Again, there are often good lands beside rivers liable to flood, which we cannot well plant with ordinary trees, and cannot wisely build upon, and these give us those rich levels that are such a gain to lowland landscape when fringed by noble planting. Flooding is not against the right trees upon islands, lake margins and riversides. Some of the best trees, like the Eastern Plane that we often associate with hot dry soils, seem happy in ground sometimes flooded, as we may see in the good soils in Southern valleys.

Of all the sites for planting there are none in which we may have clearer guidance as to what is best than we have in islands and the margins of water, be it lake or river. The vegetation should be mostly of a spiry-leaved sort—Willows in many forms, often beautiful in colour, both in summer and winter, with Poplars. Even the Willows of Britain and Europe are ample to give fine effects, and some, like the White Willow, form tall timber trees. There is also a lovely group of weeping trees among these Willows, some of them more precious than the Babylonian Willow. The best trees for waterside-planting are those of our own country or of Europe and the Northern world generally. There are many Willows, but for good effect the best are the Tree Willows, those which may be had on their natural roots and of some timber value. The best of these for our country is the White Willow, lovely at all times, but especially on days of storm, when other things are often at their worst. The hybrids of the White Willow (Bedford Willow) are good also, and next best for colour is the Yellow Willow (Salix vitellina), classed by the botanists as a variety of the White Willow, but distinct in stature, form and colour. It is often seen beside Northern rivers, and when massed in a marsh or bog or beside a wide river it is fine in effect, and best of all on wintry days. The Red Willow (Cardinal Willow) is a form of it, of even brighter colour. The Crack Willow (S. fragilis) is not so showy in colour, but is very picturesque in form upon the river banks, and quite worthy of a place among the Tree Willows.

After Willows the Poplars come in best in all Northern countries. The White Poplar is beautiful in colour as a riverside tree, and superb in form when well grown. The Poplars by the French rivers are also beautiful, though none is prettier than the Aspen. The Lombardy Poplar is sometimes very fine in valleys near water. The Grey Poplar comes next to the White in beauty, and the Black Poplar is often good beside water.

Some of the American marsh trees are very pretty near water, in particular one called the Tupelo (Nyssa sylvatica), lovely in colour in autumn; but the summer-leafing trees of the American woods have been much neglected since the vogue for planting Conifers came in, so that we can point to but few examples of good results in our country. The Hemlock Spruce thrives in wet ground, also the Norway Spruce and the Sitka Spruce. We resort to trees of the Pine tribe to clothe sandy or stony hills, but it is as well to know that for low and wet land we are not obliged to confine ourselves to Willows, Alders and Poplars if for any reason we prefer evergreen trees. In southern parts of Britain, where (after its first youth is past) the Norway Spruce is often a failure, it will yet grow well

beside streams and in wet bottoms. The Sitka Spruce—a valuable tree—is good also, and the Douglas Fir thrives in the shelter of the woods.

The worst evil of all is the mixed muddle planting which is so common in England and does more to destroy all good effect in our gardens than anything else. Very often the trees are planted to a level face, without any thought of the natural habits or ways of the things planted. The evil arises from trusting to people to plant who have never given a thought to the work from the artistic point of view.

A not infrequent feature is the ugly, formless pool that no skill can make tolerable. Made without any pretence of grace of outline, they are disfigurements, sometimes dangers. The best way is often to drain and turn them into ferneries or Azalea gardens. Water is no good if hideous in outline and not large enough to reflect light and to allow of graceful planting of Willow, Dogwood and Reed.

Arrowheads.

CHAPTER XXIV.

THE BOG GARDEN.

THE bog garden is a home for the numerous children of the wild that will not thrive on our harsh, bare, and dry garden borders, but thrive cushioned on moss or in moist peat soil. Many beautiful plants, like the Wind Gentian and Creeping Hairbell, grow on our bogs and marshes. In North America, even by the margins of the railways, one sees, day after day, the vivid blooms of the Cardinal-flower springing erect from the wet peaty hollows; and far under the shady woods stretch the black bog pools, the ground between being so shaky that you move a few steps with difficulty. And where the woody vegetation disappears the Pitcher-plant (Sarracenia), Golden Club (Orontium), Water Arum (Calla palustris), and a host of other handsome bog plants cover the ground for hundreds of acres, with perhaps an occasional slender bush of Virginian Magnolia among them.

Southwards and seawards, the bog flowers, like the splendid kinds of herbaceous Hibiscus, become tropical in size and brilliancy, while far north and west and south along the mountains grows the queen of the peat bog—the beautiful and showy Mocassin-flower (Cypripedium spectabile). Then in California, all along the Sierras, a number of delicate little annual plants continue to grow in small mountain bogs long after the plains are quite parched, and annual vegetation has quite disappeared from them. But who shall record the beauty and interest of the flowers of the wide-spreading marsh-lands of this globe of ours, from those in the vast wet woods of America, dark and brown, hidden from the sunbeams, to the little bogs of the high Alps, far above the woods, where the ground often teems with Nature's most brilliant flowers? One thing, however, we may gather from our small experience—that many plants commonly termed "alpine," and found on high mountains, are true bog plants. This must be clear to anyone who has seen our pretty Bird's-eye Primrose in the wet mountain-side bogs of Westmorland, or the Bavarian Gentian in the spongy soil by alpine rivulets.

Perhaps the most charming plants to commence with are our own native bog plants—Pinguicula, Drosera, Parnassia, Menyanthes, Viola palustris, Anagallis tenella, Nartheciu, Os-

Native bog plants. munda, Lastrea Oreopteris, Thelypteris spinulosa, and other Ferns; Sibthorpia europæa, Linnæa borealis, Primula farinosa, Campanula hederacea, Chrysosplenium alternifolium and oppositifolium; Saxifraga Hirculus, aizoides, stellaris, Caltha, and Marsh Orchises. These, and a host of plants from our marshes and the summits of our higher mountains, will flourish as freely as in their native habitats, and may all be grown in a few square feet of bog; while Rhododendrons, Kalmias, dwarf Ferns, and Sedges will serve for the bolder features.

One of the great charms of the bog garden is that everything

Mocassin-flower.

thrives and multiplies in it, and nothing droops or dies, but the real difficulty is to prevent the stronger plants from overgrowing, and eventually destroying, the weaker. A small pool of water filled with water plants is a charming addition to the bog garden.

In the bog garden many of our most beautiful plants, which in a summer like that of 1895 have been languishing for moisture in the borders, may be grown to perfection surpassing in beauty all our former impressions of them. Of primary importance, of course, is the position, and where this is naturally of a moist, boggy or swampy character, matters will be much simplified. We will assume there is such a spot at disposal, a swampy, treacherous, and, as we are wont to regard it, useless piece of land, under water the greater part of the year. Such a spot will be sure of its crop of naturally water-loving plants, such as Rushes, Sedges, or the like, and the first

care must be to root them out one and all. In doing so, be careful that 12 inches or so of the margin be overhauled, as in all probability there will be here roots and seeds of all these wildlings. According to the nature of the boggy piece and also the depth of the water, it may be necessary for cleansing the ground to cut a deep trench and allow the water to pass away, as, without the moisture, the whole is much more convenient for preparation, and roots are more readily eradicated. The ground thoroughly cleansed at the outset, attention should next be directed to the soil. This may be variable, according to the variety of plants it is intended to introduce. For instance, strong growing plants like the Meadow Sweets are all at home in a fairly stiff and moist soil. On the other hand, Iris Kæmpferi Trillium, Cypripedium, Lilium pardalinum, L. superbum, and other such things have a decided preference for soil of a vegetable character, such as peat, leaves, and the like. These latter, again, have a preference for the drier parts of the bed, while such as the Calthas and Menyanthes trifoliata revel in wet mud. To meet the varied degrees of moisture which the plants prefer will be quite an easy matter in an artificially constructed bog by the adoption of an undulating surface throughout. Slightly raised mounds are by far the most convenient, and certainly the most economical, way of providing for the greatest number of plants.

The shape, of course, should be picturesque, and, unless a depression of the whole exists, let this receive the next attention, and in such a way that the highest part will be 9 inches below the average surrounding soil. The paths should next be dealt with, excavating these nearly a foot deep in the central parts and gradually rising at the entrances. The soil taken from the paths may, if good, be used to form the raised beds for the planting of moisture-loving plants, such as are content if their roots only reach water. The sides of these beds may need rough support, such as rude sandstone blocks, to keep the soil in its place. These, or similar things, may also form stepping-stones in the wetter parts, as by this means the plants may be viewed without inconvenience. Beds of various sizes will be needed in proportion to the kind of plants that shall hereafter occupy them. For instance, the sloping banks at the edge, which may also take the form of a slightly projecting mound, would constitute excellent positions for some of the hardy Bamboos. Similar opportunities may occur at intervals throughout the margin for planting with such things as Acanthus, Yucca, Eulalia, Astilbe rivularis, Spiræa Aruncus, Bocconia cordata, and others of similar proportions, while the lower slopes and

Formation of bog garden.

Lilies.

depressions between these would make excellent places for Osmunda regalis, Lilium giganteum, L. pardalinum, L. canadense, and L. superbum in peaty beds. The latter three of these are really swamp-loving by nature, and it is scarcely possible to see them in anything approaching perfection elsewhere. In the moisture so close at hand such things simply revel, and the owner of them may for years see them towering far above his head in their day of flowering —a picture of health and beauty. With such things it should always be borne in mind that constant saturation is not absolutely essential, though, indeed, they receive it more or less in their native habitats.

A bog garden.

Where space for bog gardens is limited, a very charming carpet to the Lilies just named would be the Wood Lily of North America (Trillium grandiflorum). The two things may be planted or replanted at the same season when necessity arises. The Trillium, moreover, would come in spring-time and would protect the growth of the Lilium against our late spring frosts. For the Liliums a foot deep of peat, leaf-soil, and turf, with sharp river grit, would form a good bed, and with a mulch each year of leaf-soil and a little very rotten manure would serve them for many years. It may surprise many to know that under such conditions these Trilliums would in a few years, if left alone, attain to nearly 2 feet and be lovely in the size and purity of their flowers. In another of these depressions

Cypripedium spectabile could easily be established, or a bed may be devoted to the more showy hardy species, giving 6 inches of peat or more, with leaf-soil added. The species named is rather late in sending up its growth, and affords plenty of time for a carpet of Trillium to flower before much headway is made. Other beautiful carpeting plants for these would be found in the American Mayflower (Epigæa repens or Pratia angulata), and if the position be shaded, as it should be for the Cypripediums, a charming, yet delicate, fringe may be found in Adiantum pedatum. Besides C. spectabile, C. pubescens and C. parviflorum are well deserving attention, together with Orchis foliosa, the beautiful "Madeira Orchis," and the Habenarias, especially H. ciliaris and fimbriata; all delight in moisture and require but little root room. Then if a glow of rich colour was needed in such places it could be supplied in Spiræa venusta or S. palmata, both delighting in moist soil. Another fine effect may be had by grouping Lobelia fulgens, or indeed any of the scarlet Lobelias and Sikkim Primrose. In wet parts may be planted Osmunda regalis, Onoclea sensibilis, Struthiopteris germanica, and Astilbe rivularis, allowing room for each. Groups of the herbaceous Phloxes in their best and most distinct shades, particularly of salmon scarlet and the purest white, would find their natural wants completely satisfied in the bog garden and give fine colour. In English gardens it is only in a moist season that we see the Phlox in even fair condition, for the reason that the original species is a native of wet meadows. This condition we can best imitate by deep digging and heavy manuring, and so much the better if the beds of these be saturated with water. Only in the constant cooling moisture of the bog can Primula japonica be seen in perfection, for here will it produce rosettes of leaves 2½ feet across, and giant whorls of its crimson flowers, attaining to nearly the same height. Another charming Primrose is that from the swampy mountain meadows of the Himalayas, P. sikkimensis, essentially moisture-loving; but to get the best results this must be treated as a biennial, grown on quickly, and planted in the bog as soon as large enough to handle. Other species of Primula suited to the higher and drier parts of the bog would be found in P. cashmeriana, capitata, denticulata, rosea, farinosa, involucrata, viscosa, and others, all alike beautiful in their way, and attaining greater vigour with the abundant moisture. Some of the smaller kinds of the viscosa type are better for slight shade, such as may be provided by Dielytra spectabilis (a really delightful plant in boggy ground) and various Spiræas. It should be noted that many shade-loving plants delight in full sun when given abundant moisture at the root. Particularly

Scarlet Lobelias and Sikkim Primrose.

noticeable is this with the Liliums I have noted previously. In the early part of the year the bog garden should be aglow with such things as Marsh Marigolds, in single and double forms. In the wet mud in the lower parts and about the stepping-stones these would appear quite natural, and in like places Ficaria grandiflora, a plant too rarely seen, with its blossoms of shining gold; then Senecio Doronicum, with golden-orange flowers, Dielytra eximia, Trollius: any of the Dentarias and Dodecatheons likewise are all well suited for the raised parts where the roots will touch the moisture. The Dodecatheons in peat, loam, and leaf-soil in equal parts, particularly D. Jeffreyanum, grow to a large size: Hepaticas, too, are greatly improved in company with these last, while the charming effects that may be produced are almost without end. Corydalis nobilis in peat and loam, C. lutea, together with the Water Mimulus (M. luteus), all provide rich masses of yellow. Gentiana asclepiadea, G. Andrewsi, as well as G. verna, grow charmingly in the bog.

Nor is the list of plants exhausted; indeed, they are far too numerous to give in detail, but yet to be mentioned as among the grandest are many Irises, I. Kæmpferi in particular. Meconopsis Wallichiana (the blue Poppy of the Himalayas) produces quite a unique effect in the moisture parts. Saxifraga peltata, S. Fortunei, S. Hirculus, S. granulata plena, Soldanellas, Senecio pulcher, Sisyrinchium grandiflorum and many more are all benefited by the varying degrees of moisture to be found in the bog garden.

Japanese Iris.

In gardens where no moist piece of ground exists, such as those with gravel or sandy subsoils, it will be necessary to select a low part and mark out an irregular outline. Next dig out the soil 18 inches or 2 feet in depth, so as to allow of at least 6 inches of clay being puddled in the bottom to retain the moisture. For bog plants clay is far better than concrete, because it supplies food for many moisture-loving plants. To keep the clay in position, sloping sides will be best, and for the soils named it will scarcely be necessary to have more than a small outlet for excessive moisture, and this at about 12 inches high from the deepest part. For this a narrow clinker or rough brick drain will suffice, so placed that the outlet may be blocked, if necessary, for affording greater moisture. By digging a shallow trench around the upper margin of the bog-bed, and using Bamboos or Bocconia cordata — these valuable for their rapid annual growth—such things would give the needful shade in summer.

In large gardens and cool, hilly districts the bog garden should always be found. Some years ago I had charge of just such a garden: in the flower garden was a fountain basin wherein water

plants were grown; the overflow from this went tumbling in many ways over a series of rocks into the rock garden pond containing Orontium aquaticum, Nymphæas, and Sagittarias. In turn the overflow from the rock garden was conducted to the bog garden proper, where many masses of Cypripedium spectabile, with fully a score of spikes of its beautiful flowers to each tuft, grew in luxuriance in peat and leaves under a welcome shade. Here, too, Osmundas were rampant together with Primula japonica and a variety of plants already mentioned, and Ourisia coccinea, tightly pressing the surface of a stone, flowered splendidly.—E. J.

A natural bog garden.

In some of the southern counties there is not much marsh land that we can deal with, but in many parts of our islands, especially Ireland north and south, and also in mountain country everywhere, there are many natural bog gardens which only need a little development, climate, soil and everything else being all we can desire for our bog garden. The peat soil which we seek for in vain in some southern counties is there, and even many of the welcome sorts of plants, such as Heaths and the Sweet Gale, are to be found there if we are shy of attempting the more delicate plants of other countries.

CHAPTER XXV.

THE HARDY FERN GARDEN.

THE marriage of the fern and flower garden is worth effecting, our many hardy evergreen Ferns being so good for association with hardy flowers. In my garden we have planted hardy ferns with British, North American and others, with good effect, both in summer and winter, using them mainly beneath Clematis and in the cooler part of the garden. There are many varieties of our native Ferns which would be excellent companions to plants suited for sheltered, half-shady nooks, and there are hardy and vigorous exotic kinds. Graceful effects may be had in foregrounds, in drives through glades, through the bold use of the larger hardy Ferns, whether evergreen or not. The Bracken is everywhere; but there are Ferns of graceful form which delight in the partial shade of open woods and drives, and succeed even in the sun. Ferns have, as a rule, been stowed away in obscure corners, and have rarely come into the garden landscape, though they may give us beautiful aspects of vegetation not only in the garden, but by grassy glades, paths, and drives.

A hardy fernery.

In the home counties there is probably not a better fernery than that at Danesbury. It is on a sloping bank in a rather deep dell, overhung with trees and Ivy, in the shade of which the Ferns delight. As regards the planting, the various families are arranged in distinct groups, and each group has a position and a soil favourable to its requirements. The best way to grow Ferns, however, is with flowers, as in Nature, and a hardy fernery may be very beautiful. At Danesbury the most sheltered, moist spot is given to the evergreen Blechnums, which delight in a damp atmosphere, and to the delicate forms of Asplenium. Osmunda, which thrives amazingly, is in a low swamp. The soil used for these Royal Ferns is a mixture of good loam and fibrous peat. The better deciduous kinds of Polypodium, such as P. Phegopteris and P. Dryopteris, have sheltered positions; and in quiet nooks may be found charming groups of the Parsley Fern, and Cystopteris fragilis, a most delicate and graceful Fern. Lastrea Filix-mas and its varieties occupy the more exposed positions in company with fine colonies of the evergreen kinds, comprising some unique varieties of the Polystichums, Scolopendriums, Polypodiums, etc. A plentiful supply of water is available.

The Fern-lover will remember that not only have we our own beautiful native Ferns for adorning our gardens, but also the hardy Ferns of America, Asia, and the continent of Europe. As to the hardiness of exotic Ferns, Mr Milne-Redhead writes from Clitheroe :—

Exotic hardy Ferns.

Is it not strange that we so seldom see, even in good gardens, any well-grown plants of exotic Osmundas, Struthiopteris, &c.? Here, after a long spell of hot, dry weather, we had on May 20, 1896, a sharp snap of frost which completely cut off the more than usually beautiful flowers of Azalea mollis, and seriously injured the young growths of some Japanese Pines, such as Abies firma, A. sachalinensis, and others. This frost turned the young fronds of our English Filix-mas and Filix-femina quite black. Close by these plants, and under similar conditions of soil and exposure, the American Adiantum pedatum, 1 foot high, and the tender-looking Onoclea sensibilis were quite unhurt, and Osmunda interrupta and O. cinnamomea entirely escaped and are now very fine. Our English O. regalis was slightly touched, but the Brazilian O. spectabilis brought by myself from dry banks in the Organ Mountains was not even browned in its early and delicate fronds. All the Ferns I have named are great ornaments to any moist and rather shady place in the shrubbery. In a sheltered nook in the rock garden I find, to my surprise, that Gymnogramma triangularis has survived the perils not only of a frosty spring, but the still greater ones of a wet autumn and winter, and is now throwing up healthily its pretty triangular fronds, whose under surface is quite white with the powder peculiar to the genus—in fact a hardy silver Fern.

A visit to Mr Sclater's Fern garden at Newick shows us the good effects that may be had by using the nobler hardy Ferns—both native and foreign—in a bolder way, and often in the open sun. The idea that a fernery is best in a dark corner has had unfortunate results in keeping the grace of such plants out of the garden picture. Hardy Ferns are being used in bold and simple ways at Kew, where at one time they were in an obscure fernery, and even if some Ferns require shade, many do not in our cool climate. Shade is, moreover, an elastic term ; the bold hardy Ferns one sees in the American woodlands would not have too much sun in the open in Britain, provided they were in the right soil.

Many hardy Ferns are excellent for association with hardy flowers, and many may be grouped with evergreen rock and hill plants in forming borders and groups of evergreen plants. Though we have enough native Ferns in these islands to give us very fine effects, as we see at Penrhyn, or wherever Ferns are boldly grouped, some of the finest Ferns we see at Newick, and also at Rhianva and other gardens are natives of North America, Foremost among the strong-growing hardy exotic kinds, there are the handsome North American Osmunda cinnamomea, and O. Claytoniana, O. gracilis, a very pretty species of particularly

slender habit; the Sensitive Fern (Onoclea), Dicksonia punctiloba, the beautiful Canadian Maiden-hair, the American Ostrich Feather Fern, Lastrea Goldiana, Woodwardia virginica, all of North American origin and attaining between 2 feet and 3 feet in height. Among the smaller Ferns are Aspidium nevadense, novaboracense and thelypteroides, Asplenium angustifolium, Athyrium Michauxi and Woodwardia angustifolia, all of which grow from 18 inches to 24 inches. Allosorus acrostichoides, the handsome Polypodium hexagonopterum, Woodsia obtusa, oregana and scopulina, and also two pretty Selaginellas, viz., oregana and Douglasi. All these are of small dimensions, varying as they do from 6 inches to 12 inches in height. The pretty Hypolepis anthriscifolia of South Africa; the robust Lastrea atrata, from India; the Japanese Lastrea decurrens, the massive Struthiopteris orientalis, also a native of Japan, and the pretty Davallia Mariesi are all equal in hardiness to any of our British deciduous Ferns.

Evergreen hardy Ferns.

Some of the evergreen Ferns, whether British or exotic, which stand the severity of our climate, are as hardy as those which lose their leaves in winter, and no Fern could be hardier than the various small-growing Aspleniums, which grow in old walls exposed to severe frosts, such as the black stemmed Spleenwort (several), and its pretty crested and notched forms, the little Wall Rue or Rue Fern, the forked and other native Spleenworts. All these are small, seldom exceeding 8 inches in height, while the black Maiden-hair Spleenwort Blechnum and its several beautiful forms usually average from 9 inches to 12 inches in height. Polypodium also contains some handsome evergreen plants; even the common Polypody is a fine plant in its way, and is seen at its best when growing on a wall, on the branches of a tree, or on the roof of a low house. But by far the handsomest of its numerous forms are the Welsh Polypody, the Irish and the Cornish, and its handsome, finely-cut varieties in which the fronds are of a light and feathery nature. Then there are the more or less heavily crested forms, all of larger dimensions than the species from which they are issue. The common Hart's-tongue supplies us with many forms giving fine effect and free growth.

As regards strong-growing evergreen hardy Ferns, however, none can compare with the Prickly Shield Fern and the soft Prickly Shield Fern, and its beautiful varieties which produce massive fronds 18 inches to 24 inches long. Then there is an extensive section of varieties in which the fronds in many instances are as finely cut as those of the Lace Fern, and infinitely finer in effect. The soft Prickly Shield Fern has also produced some remarkably crested forms, all of which are equal in vigour and in

dimensions to the typical species. The Holly Fern is also hardy, and is one of those plants which are usually killed with kindness, through being grown in a temperature higher than is required.

Exotic Evergreen kinds.

Not less effective and quite as interesting as the above though of smaller dimensions are the North American Asplenium ebenum, Phegopteris alpestris, Pellæa atropurpurea, Woodsia alpina and W. glabella, varying in height from 6 inches to 12 inches. There are also some remarkably handsome strong-growing sorts, native of Japan, the most decorative as also the most distinct among these being Lastrea Standishi, with fronds 24 inches to 30 inches long, and of a lovely and cheerful green colour; Lastrea erythrosora, with fronds 18 inches to 24 inches long, of a beautiful bronzy red colour when young, and of a deep dark green hue when mature. Lastrea opaca is another handsome Japanese form, broad and massive, of a fine metallic colour when young, and of a deep velvety green when mature. In Lastrea Sieboldi we have a totally distinct plant, having the general aspect of a somewhat dwarf Polypodium aureum and of the same bluish colour. This and Dictyogramma japonica, which have somewhat bold and broad fronds, are also quite hardy, and so are the Japanese Lastrea prolifica, a species with finely-cut fronds, bearing numerous small plants; the handsome Polystichum setosum, with beautiful dark green, shining foliage; Polystichum tsus-simense, Lastrea corusca and L. aristata. Lomaria chilensis is a large-growing Fern with fronds 24 inches to 30 inches long and of a particularly deep green colour. Niphobolus Lingua is a very distinct Fern with entire fronds of a very leathery nature, dark green above and silvery beneath, having somewhat the general appearance of our common Hart's-tongue, but in this case the fronds, instead of starting from a single crown, are produced along a slender rhizome of a wiry nature. Perhaps one of the prettiest of the hardy evergreen Ferns is the violet-scented Lastrea fragrans.

Rock and sun-loving Ferns.

It is a mistake to consider all Ferns as plants requiring shade and moisture. There are, on the contrary, Ferns which like full sunshine and bright light. Without counting Cystopteris alpina and fragilis, which grow in our walls as well in sun as in shade, there is one class of Ferns which actually requires sunshine. Cheilanthes from the Old World, as well as those from the New, only do well in a sunny aspect. I could not succeed at Geneva in cultivating Cheilanthes odora, lanuginosa and vestita. In spite of every care given to them, they suffered from general weakness, ending in decay. At last I one day saw Woodsia hyperborea, that delicate and fragile plant, in full sun along an alpine road in Italy, and on returning I planted all my Cheilanthes in sunshine

on a south wall. The result was good, and I recommend the plan to Fern growers. But it was necessary also to change the soil in which these plants were cultivated, and I set them in soft porous mould composed of Sphagnum Moss, peat and sand; good drainage and frequent watering ensured an immediate and excellent result. That which proved satisfactory for Cheilanthes I then tried for Woodsia hyperborea and ilvensis (the treatment did not do for W. obtusa); then for Scolopendrium Hemionitis, that pretty and curious Fern from the south so rarely met with in gardens, where it is considered difficult to grow. Then I gave the same treatment to Nothochlena Marantæ; and this lovely Fern, which formerly did not do with me, turned out marvellously well. It is, then, certain that many species of Ferns require sun and plenty of air.—H. CORREVON, in *Gardeners' Chronicle.*

Ferns in the flower garden.

The flower garden should be in the sun, but there may be a chance now and then of growing Ferns in shady corners. In my garden I took advantage of the cool side of a summer-house to plant the Feather Ferns, which have done very well there, and with other things are a graceful foil to the bright flowers. In the same place the Maiden-hair Fern of the American woods thrives and is most welcome. On the cool side of a wall I put some graceful native Ferns of recent years, and they are as pretty as any Fern in the tropics, thriving not perhaps as well as in a deep gully; but we are glad to have them. Some of the little Ferns of the district came of themselves on the cool side of a wall. Polypody grows there very well and the Maiden-hair Spleenwort also.

The following exotic Ferns may be grown in the open air if the more tender are covered with old fronds or soft hay over the crowns in winter. These would be better in sheltered nooks in the rock garden in good peaty earth. Those kinds marked with an asterisk should receive protection in this form.

Exotic hardy Ferns.

Adiantum pedatum
Allosorous acrostichoides
Aspidium cristatum
Clintonianum
fragrans
nevadense
novaboracense
rigidum argutum
spinulosum
thelypteroides
Asplenium angustifolium
ebenum
*fontanum (Europe)
thelypteroides
Michauxi
otrychium virginicum
*Cyrtomium caryotideum (E. Indies)
*falcatum (Japan)
*Fortunei (Japan)
Dennstædtia punctilobula
Hypolepsis millefolium (N. Zealand)
anthriscifolia (S. Africa)
Lastrea
*atrata (India)
*decurrens (Japan)
fragrans
Goldiana
intermedia
marginalis
*opaca (China)
Lastrea—*continued.*
prolifica (Jamaica)
Sieboldi (Japan)
*varia (China)
Lomaria alpina (N. Zealand)
chilensis (Chili)
crenulata (Chili)
Onoclea sensibilis
Osmunda cinnamomea
Osmunda Claytoniana
gracilis
japonica
*Pellæa atropurpurea
*gracilis
Phegopteris alpestris
Dryopteris
hexagonoptera
polypodioides
Polystichum acrostichoides
a. grandiceps
a. incisum
Brauni
concavum (Japan)
munitum (California)
m. imbricans
polyblepharum (Japan)
*proliferum (Australia)
*setosum (Japan)
Struthiopteris germanica (Europe)
*orientalis (Japan)
pennsylvanica
p. recurva
Woodsia
glabella
obtusa
oregana
scopulina
Woodwardia angustifolia
*japonica (Japan)
orientalis (Japan)
radicans (S. Europe)
r. americana
virginica

CHAPTER XXVI.

COLOUR IN THE FLOWER GARDEN.

ONE of the first things which all who care for gardens should learn, is the difference between true and delicate and ugly colour—between the showy dyes and much glaring colour seen in gardens and the beauties and harmonies of natural colour. There are, apart from beautiful flowers, many lessons and no fees:—Oak woods in winter, even the roads and paths and rocks and hedgerows; leaves in many hues of life and death, the stems of trees: many birds are lovely studies in harmony and delicate gradation of colour; the clouds (eternal mine of divinest colour) in many aspects of light, and the varied and infinite beauty of colour of the air itself as it comes between us and the distant view.

Nature is a good colourist, and if we trust to her guidance we never find wrong colour in wood, meadow, or on mountain. "Laws" have been laid down by chemists and decorators about colours which artists laugh at, and to consider them is a waste of time. If we have to make coloured cottons, or to "garden" in coloured gravels, then it is well to think what ugly things will shock us least; but dealing with living plants in their infinitely varied hues, and with their beautiful flowers, is a different thing! If we grow well plants of good colour, all will be right in the end, but often raisers of flowers work against us by the raising of flowers of bad colour. The complicated pattern beds so often seen in flower gardens should be given up in favour of simpler beds, of the shapes best suiting the ground, and among various reasons for this is to get true colour.

When dwarf flowers are associated with bushes like Roses, and with plants like Carnations and tall Irises, having pointed and graceful foliage, the colours are relieved against the delicate foliage of the plants and by having the beds large enough we relieve the dwarfer flowers with taller plants behind. In a shrubbery, too, groups of flowers are nearly always right, and we can follow our desire in flowers without much thought of arranging for colour. But as the roots of the shrubs rob the flowers, the best way is to put near and around shrubberies free-running plants that do not want much

cultivation, like Solomon's Seal and Woodruff, and other plants that grow naturally in woods and copses, while with flowers like Pansies, Carnations, Roses, that depend for their beauty on good soil, the best way is to keep them in the open garden, away from hungry tree-roots.

We relieve the flowers and enjoy their beauty of colour and the forms of the plants when we do without "pattern" of any kind.

Large simple beds.

Instead of "dotting" the plants, it is better to group them naturally, letting the groups run into each other, and varying them here and there with taller plants. A flower garden of any size could be planted in this way, without the geometry of the ordinary flower garden, and the poor effect of the "botanical" "dotty" mixed border. The following notes on colour, by a flower gardener who has given much thought to the subject, will be useful :—

One of the most important points in the arrangement of a garden is placing of the flowers with regard to their colour-effect. Too often a garden is an assemblage of plants placed together haphazard, or if any intention be perceptible, as is commonly the case in the bedding system, it is to obtain as great a number as possible of the most violent contrasts; and the result is a hard, garish vulgarity. Then, in mixed borders, one usually sees lines or evenly distributed spots of colour, wearying and annoying to the eye, and proving how poor an effect can be got by the misuse of the best materials. Should it not be remembered that in setting a garden we are painting a picture,—a picture of hundreds of feet or yards instead of so many inches, painted with living flowers and seen by open daylight—so that to paint it rightly is a debt we owe to the beauty of the flowers and to the light of the sun; that the colours should be placed with careful forethought and deliberation, as a painter employs them on his picture, and not dropped down in lifeless dabs.

Splendid harmonies of rich and brilliant colour, and proper sequences of such harmonies, should be the rule; there should be large effects, each well studied and well placed, varying in different portions of the garden scheme. One very common fault is a want of simplicity of intention; another, an absence of any definite plan of colouring. Many people have not given any attention to colour-harmony, or have not by nature the gift of perceiving it. Let them learn it by observing some natural examples of happily related colouring, taking separate families of plants whose members are variously coloured. Some of the best to study would be American Azaleas, Wallflowers, German and Spanish Iris, Alpine Auriculas, Polyanthus, and Alstrœmerias.

Harmony rather than contrast.

It is important to notice that the mass of each colour should be large enough to have a certain dignity, but never so large as to be wearisome; a certain breadth in the masses is also wanted to counteract the effect of foreshortening when the border is seen from end to end. When a definite plan of colouring is decided on, it will save trouble if the plants whose flowers are approximately the same in colour are grouped together to follow each other in season of blooming. Thus, in a part of the border assigned to red, Oriental Poppies might be planted among or next to Tritomas, with scarlet Gladioli between both, so that there should be a succession of scarlet flowers, the places occupied by the Gladioli being filled previously with red Wallflowers.

Breadth of mass and intergrouping.

Warm colours are not difficult to place: scarlet, crimson, pink, orange, yellow, and warm white are easily arranged so as to pass agreeably from one to the other. Purple and lilac group well together, but are best kept well away from red and pink; they do well with the colder whites, and are seen at their best when surrounded and carpeted with grey-white foliage, like Cerastium tomentosum and Cineraria maritima; but if it be desired to pass from a group of warm colour to purple and lilac, a good breadth of pale yellow or warm white may be interposed.

Blue requires rather special treatment, and is best approached by delicate contrasts of warm whites and pale yellows, such as the colours of double Meadow Sweet, and Œnothera Lamarckiana, but rather avoiding the direct opposition of strong blue and full yellow. Blue flowers are also very beautiful when completely isolated and seen alone among rich dark foliage.

In a mixed border they might begin with strong blues, light and dark, grouped with white and pale yellow, passing on to pink; then to rose colour, crimson, and the strongest scarlet, leading to orange and bright yellow. A paler yellow followed by white would distantly connect the warm colours with the lilacs and purples, and a colder white would combine them pleasantly with low-growing plants with cool-coloured leaves.

A progression of colour.

Silvery-leaved plants are valuable as edgings and carpets to purple flowers, and bear the same kind of relation to them as the warm-coloured foliage of some plants does to their strong red flowers, as in the case of the Cardinal Flower and double crimson Sweet-William. The bright clear blue of Forget-me-not goes best with fresh pale green, and pink flowers are beautiful with pale foliage striped with creamy white, such as the variegated forms of Jacob's-ladder or

Silvery-leaved plants.

Iris pseudacorus. A useful carpeting plant, Acæna pulchella, assumes in spring a rich bronze between brown and green which is valuable with Wallflowers of the brown and orange colours. These few examples, out of many that will come under the notice of any careful observer, are enough to indicate what should be looked for in the way of accompanying foliage—such foliage, if well chosen and well placed, may have the same value to the flowering plant that a worthy and appropriate setting has to a jewel.

In sunny places warm colours should preponderate; the yellow colour of sunlight brings them together and adds to their glowing effect.

A shady border.

A shady border, on the other hand, seems best suited for the cooler and more delicate colours. A beautiful scheme of cool colouring might be arranged for a retired spot, out of sight of other brightly coloured flowers, such as a border near the shady side of any shrubbery or wood that would afford a good background of dark foliage. Here would be the best opportunity for using blue, cool white, palest yellow, and fresh green. A few typical plants are the great Larkspurs, Monkshoods, and Columbines, Anemones (such as japonica, sylvestris, apennina, Hepatica, and the single and double forms of nemorosa), white Lilies, Trilliums, Pyrolas, Habenarias, Primroses, white and yellow, double and single, Daffodils, white Cyclamen, Ferns, and mossy Saxifrages, Lily-of-the-Valley, and Woodruff. The most appropriate background to such flowers would be shrubs and trees, giving an effect of rich sombre masses of dusky shadow rather than a positive green colour, such as Bay Phillyrea, Box, Yew, and Evergreen Oak. Such a harmony of cool colouring, in a quiet shady place, would present a delightful piece of gardening.

The Poet's Laurel.

CHAPTER XXVII.

FRAGRANCE.

A MAN who makes a garden should have a heart for plants that have the gift of sweetness as well as beauty of form or colour. And what a mystery as well as charm—wild Roses sweet as the breath of heaven, and wild Roses of repulsive odour all born of the earth-mother, and it may be springing from the same spot. Flowers sweet at night and scentless in the day; flowers of evil odour at one hour and fragrant at another; plants sweet in breath of blossom, but deadly in leaf and sap; Lilies sweet as they are fair, and Lilies that must not be let into the house; bushes in which all that is delightful in odour permeates to every March-daring bud. The Grant Allens of the day, who tell us how the Dandelion sprang from the Primrose some millions of years ago, would no doubt explain all these things to us, by what Sir Richard Owen used to call "conjectural biology," but we need not care, for to us is given this precious fragrance, happily almost without effort, and as free as the clouds from man's power to spoil.

Every fertile country has its fragrant flowers and trees; alpine meadows with Orchids and mountain Violets; the Primrose-scented woods, Honeysuckle-wreathed and May-frosted hedgerows of Britain; the Cedars of India and of the mountains of Asia Minor, with Lebanon; trees of the same stately order, perhaps still more fragrant in the warmer Pacific breezes of the Rocky Mountains and Oregon, where the many great Pines often spring from a carpet of fragrant Evergreens, and a thousand flowers which fade away after their early bloom, and stand withered in the heat, while the tall Pines over-

head distil for ever their grateful odour in the sunny air. Myrtle, Rosemary, and Lavender, and all the aromatic bushes and herbs clothing the little capes that jut into the great sea which washes the shores of Greece, Italy, Sicily, and Corsica; garden islands scattered through vast Pacific seas, as stars are scattered in the heavens; enormous tropical forests, little entered by man; great island gardens like Java and Ceylon and Borneo, rich in spices and lovely plant life; Australian bush, with plants strange as if from another world, but often most delicate in odour even in the distorted fragments of them we see in our gardens.

It is not only from the fragile flower-vases these sweet odours flow; they breathe through leaf and stem, and the whole being of many trees and bushes, from the stately Gum trees of Australia to the Sweet Verbena of Chili. Many must have felt the charm of the strange scent of the Box bush before Oliver Wendell Holmes told us of its "breathing the fragrance of eternity." The scent of flowers is often cloying, as of the Tuberose, while that of leaves is often delicate and refreshing, as in the budding Larch, and in the leaves of Balm and Rosemary, while fragrance is often stored in the wood, as in the Cedar of Lebanon and many other trees, and even down through the roots.

It is given to few to see many of these sweet plants in their native lands, but we who love our gardens may enjoy many of them about us, not merely in drawings or descriptions, but the living, breathing things themselves. The Geraniums in the cottage window bring us the spicy fragrance of the South African hills: the Lavender bush of the sunny hills of Provence, where it is at home; the Roses in the garden bring near us the breath of the wild Roses on a thousand hills; the sweet or pot herbs of our gardens are a gift of the shore-lands of France and Italy and Greece. The Sweet Bay bush in the farmer's or cottage garden comes with its story from the streams of Greece, where it seeks moisture in a thirsty land along with the wild Olive and the Arbutus. And this Sweet Bay is the Laurel of the poets, of the first and greatest of all poet and artist nations of the earth—the Laurel sacred to Apollo, and used in many ways in his worship, as we may see on coins, and in many other things that remain to us of the great peoples of the past. The Myrtle, of less fame, but also a sacred plant beloved for its leaves and blossoms, was, like the Laurel, seen near the temples of the race who built their temples as the Lily is built, whose song is deathless, and the fragments of whose art are despair to the artist of our time. And thus the fragrant bushes of our gardens may entwine for us, apart from their gift of beauty, living associations and beautiful thoughts for ever famous in human story.

It is not only odours of trees and flowers known to all we have to think of, but also many delicate ones, less known, perhaps, by reason of the blossoms that give them being without showy colour, as the wild Vine, the Sweet Vernal, Lemon, and other grasses. And among these modest flowers there are none more delicate in odour than the blossoms of the common white Willow, the yellow-twigged and the other Willows of Britain and Northern Europe, which are all the more grateful in air coming to us

O'er the northern moorland, o'er the northern foam.

What is the lesson these sweet flowers have for us? They tell us —if there were no other flowers to tell us—that a garden should be a living thing; its life not only fair in form and lovely in colour, but in its breath and essence coming from the Divine. They tell us that the very common attempt to conform their fair lives into tile or other patterns, to clip or set them out as so much mere colour of the paper-stainer or carpet-maker, is to degrade them and make our gardens ugly and ridiculous, from the point of view of Nature and of true art. Yet many of these treasures for the open garden have been shut out of our thoughts owing to the exclusion of almost everything that did not make showy colour and lend itself to crude ways of setting out flowers.

What fragrance teaches.

Of the many things that should be thought of in the making of a garden to live in, this of fragrance is one of the first. And, happily, among every class of flowers which may adorn our open-air gardens there are fragrant things to be found. Apart from the groups of plants in which all, or nearly all, are fragrant, as in Roses, the annual and biennial flowers of our gardens are rich in fragrance—Stocks, Mignonette, Sweet Peas, Sweet Sultan, Wallflowers, double Rockets, Sweet Scabious, and many others. These, among the most easily raised of plants, may be enjoyed by the poorest cottage gardeners. The garden borders of hardy flowers bear for us odours as precious as any breath of tropical Orchid, from the Lily-of-the-Valley to the Carnation, this last yielding, perhaps, the most grateful fragrance of all the flowering host in our garden land. In these borders are things sweeter than words may tell of—Woodruff, Balm, Pinks, Violets, garden Primroses, Polyanthuses, Day and other Lilies, early Iris, Narcissus, Evening Primroses, Mezereon, and Pansies delicate in their sweetness.

No one may be richer in fragrance than the wise man who plants hardy shrubs and flowering trees—Magnolia, May, Daphne, Lilac, Wild Rose, Azalea, Honeysuckle—names each telling of whole families of fragrant things. From the same regions whence come the

Laurel and the Myrtle we have the Laurustinus, beautiful in our sea-coast and warmer districts, and many other lovely bushes happy in our climate; one, the Winter Sweet, pouring out delicious fragrance in mid-winter; Sweet Gale, Allspice, and the delightful little May-flower that creeps about in the woodland shade in North America. So, though we cannot boast of Lemon or Orange groves, our climate is kind to many lovely and fragrant shrubs.

Even our ugly walls may be sweet gardens with Magnolia, Honeysuckle Clematis, Sweet Verbena, and the delightful old Jasmine, still clothing many a house in London. Most precious of all, however, are the noble climbing Tea Roses raised in our own time. Among the abortions of this century these are a real gain—the loveliest flowers ever raised by man. Noble in form and colour, and scented as delicately as a June morn in alpine pastures, with these most precious of garden Roses we could cover all the ugly walls in England and Ireland, and Heaven knows many of them are in want of a veil.

Some Fragrant Plants for British Gardens.

Abelia	Crinum	Lupins	Pondflower	Sweet Scabious
Abronia	Cyclamen	Magnolias	Plaintain Lily	Sweet Sultan
Allspice	Datura	Marvel of Peru	Primroses	Sweet Verbena
Almond	Day Lily	May-flower	Rhododendrons	Sweet-William
Alyssum	Deutzia	Meadow Sweet	Rock Rose	Thyme
Apples	Evening Primrose	Mexican Orange Flower	Rockets	Tuberose
Auricula	Forsythia	Mezereon	Rose	Tulip Tree
Azalea	Grape Hyacinth	Mignonette	Rosemary	Tulips
Balm	Hawthorns	Mock Orange	Scilla	Twinflower
Balm of Gilead	Heartsease	Musk	Stocks	Vine
Bee Balm	Heliotrope	Myrtle	St. Bruno's Lily	Violets
Belladonna Lily	Honeysuckles	Narcissus	Snowflake	Wallflowers
Blue Bells	Horse Chestnut	Night-scented Stocks	Southernwood	Water-Lilies
Brugmansia	Hyacinths	Pæony (some)	Styrax	Willows
Burning Bush	Iris	Pancratium	Sweet Bay	Winter Green
Carnation	Jasmine	Pansy	Sweet Cicely	Winter Heliotrope
Clematis	Lavender	Pelargonium	Sweet Fern Bush	Winter-Sweet
Cethra	Lilac	Phlox	Sweet Flag	Wistaria
Columbine	Lily	Polyanthus	Sweet Gale	Woodruff
Cowslips	Lily-of-the-Valley		Sweet Pea	Yarrow

CHAPTER XXVIII.

SIMPLER FLOWER GARDEN PLANS AND THE RELATION OF THE FLOWER GARDEN TO THE HOUSE.

A GREAT waste is owing to frivolous and thoughtless "design" as to plan and shapes of the beds in the flower garden. What a vision opens out to any one who considers the design of the flower garden when he thinks of the curiosities and vexations in the forms of beds in almost every land where a flower garden exists! The gardener is the heir—to his great misfortune—of much useless complexity and frivolous design, born of applying conventional designs to the ground. These designs come to us from a remote epoch, and the designing of gardens being from very early times in the hands of the decorative "artist," the garden was subjected to their will, and in our own days we even see gardens laid without the slightest relation to garden use, difficult to plant, and costly to form and to keep in order. At South Kensington the elaborate tracery of sand and gravel was attractive to some when first set out, but it soon turned to dust and ashes. It was, indeed, to a great extent formed of broken brickdust, in a vain attempt to get rid of the gardener and his flowers. The colours were supplied from the building sheds, where boys were seen pounding up bricks and slates, and beds were made of silver sand, so that no gardener could disfigure them. The Box edgings of beds a foot wide or smaller soon got out of order, and after a few years the whole thing was painful to see, while good gardeners were wasting precious time trying to plant paltry beds in almost every frivolous device known to the art of conventional design.

Even where such extravagances were never attempted we see the evil of the same order of ideas, and in many gardens the idea of adapting the beds to the ground never occurs to the designer, but a design has been taken out of some old book. If the ground does not suit the plan, so much the worse for the ground and all who have to work on it. From the results of this style of forming beds the cottage gardens escaped, the space being small and the cottage gardener content with the paths about his door. Now there are

Book plans.

bold spirits who do not mind setting their houses among rocks and heather, but we must cultivate a flower garden, and simplicity as to the form of the beds should be the rule in it. Our object should be to see the flowers and not the beds, so that while we have all the advantage of mass and depth of soil, and all the good a bed can give for convenience of working or excellence of growth, we should take little pride in its form, and plant it so that we may see the picturesque effects of the plants and flowers, and forget the form of the bed in the picture.

The relation of the beds to each other is often much too complex and there is little freedom. Designs that were well enough for furniture or walls or panels when applied to the garden gave us a new set of difficulties. Carried out in panel or in the carpet they answer their purpose, if we like them; but a flower-bed is a thing for much work in cultivating, arranging and keeping it, and it is best to see that we are not hindered by needless complexities in dealing with the beds. In good plans there is no difficulty of access, no small points to be cut in grass or other material, no vexatious obstruction to work, but beds as airy and simple as possible and giving us much more room for flowers than beds of the ordinary type.

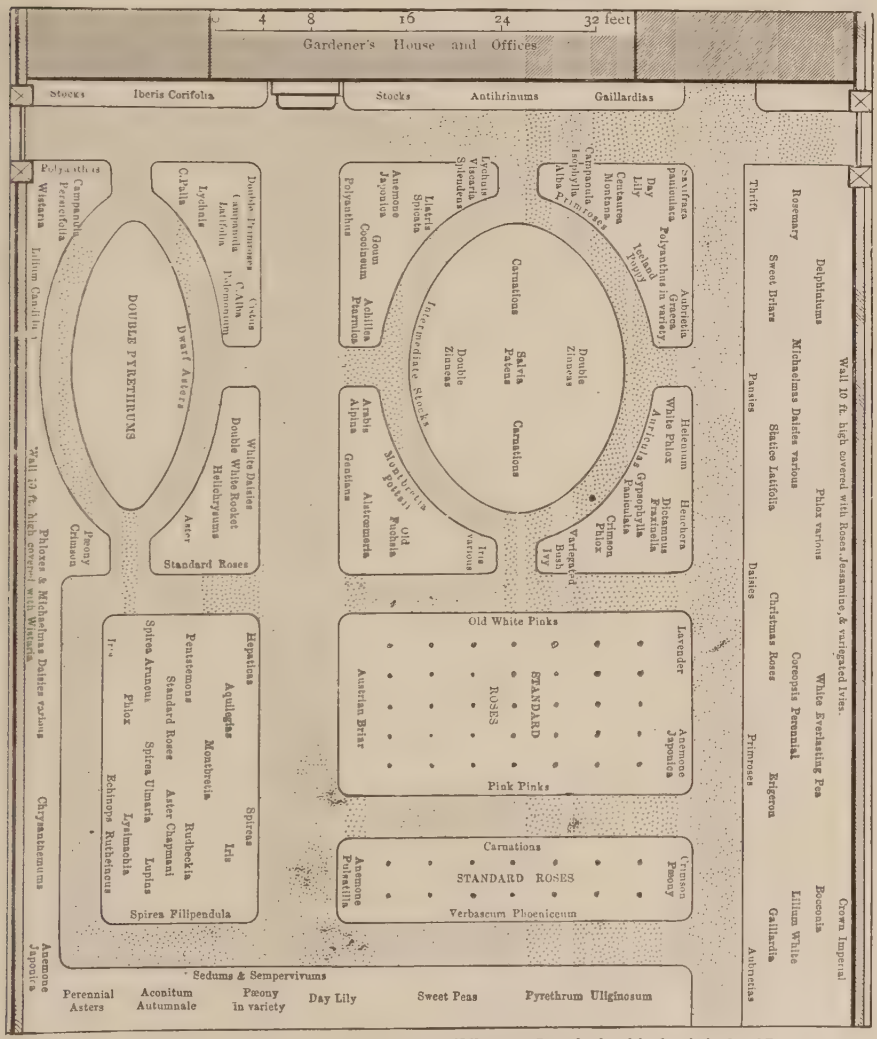
Garden at Uffington.

The plan of the gardener's house of Uffington, near Stamford, is an example of the older-fashioned garden not once uncommon. At one end of the little garden is the gardener's house, and high walls surround the rest of the garden, so that there is shelter and every comfort for the plants. The garden is simply laid out to suit the ground, the plants—Roses and hardy flowers in great variety, a plan which admits of delightful effect in such walled gardens. Picturesque masses of Wistaria covered one side of the wall and part of the house—the whole was a picture; and it would be difficult to find in garden enclosures anything more delightful during more than half the year.

The main drawback in gardens of this sort in the old days was the absence of grouping or any attempt to hold "things together"—a fault which is easily got over. It is easy to avoid scattering things one likes all over the beds at equal distances, and, without "squaring" them in any stupid way, to keep them rather more together in natural groups, in which they are more effective, and in winter it is much easier to remember where they are. In this way, too, it is easy to give a somewhat distinct look to each part of the garden. Box edgings may be used in such a garden, and where they thrive and are well kept they are very pretty in effect, but always distinctly inferior to a stone edging because more

troublesome, and also because dwarf plants cannot grow over them here and there as they can over a rough edging of natural stone, the best of all edgings.

This garden shows two essential things in the art of gard e n



Sheltered little garden in front of gardener's house at Uffington, Stamford, with simple beds of Roses and hardy flowers. The space enclosed in walls.

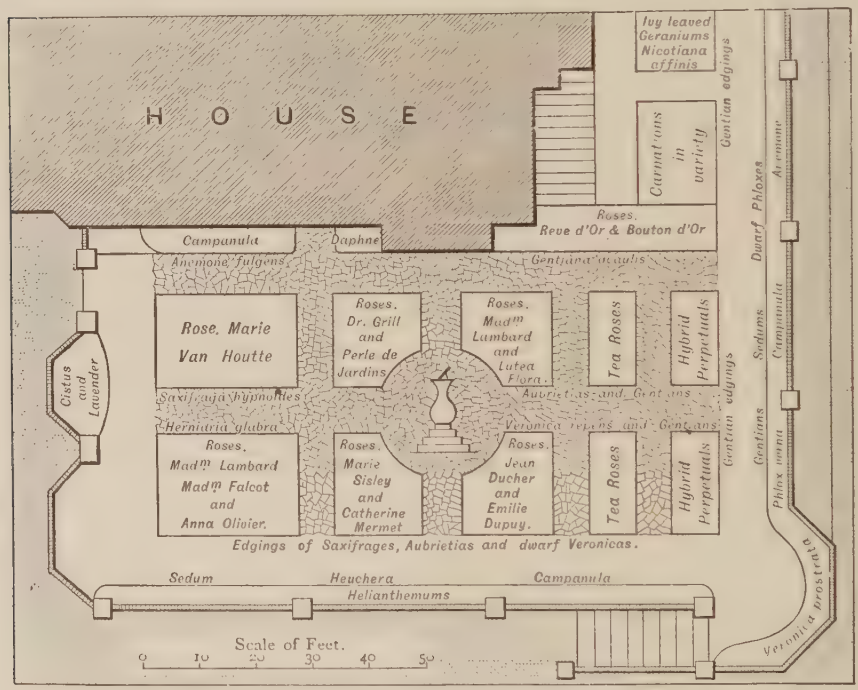
design: First, that it is by studying the ground itself, rather than bringing in any conventional plans, that we arrive at the best results.

Hawley.

Gardening is so pleasant in many ways that almost any plan may pass for pretty and yet be far from being the most artistic result that could be got

among a given set of conditions or difficulties it may be of ground. If in such a case we adopt such plans as are sent out from offices both in France and England, it is possible that (with considerable cost) we may adapt them to the situation, but assuredly that way cannot give us the most artistic result.

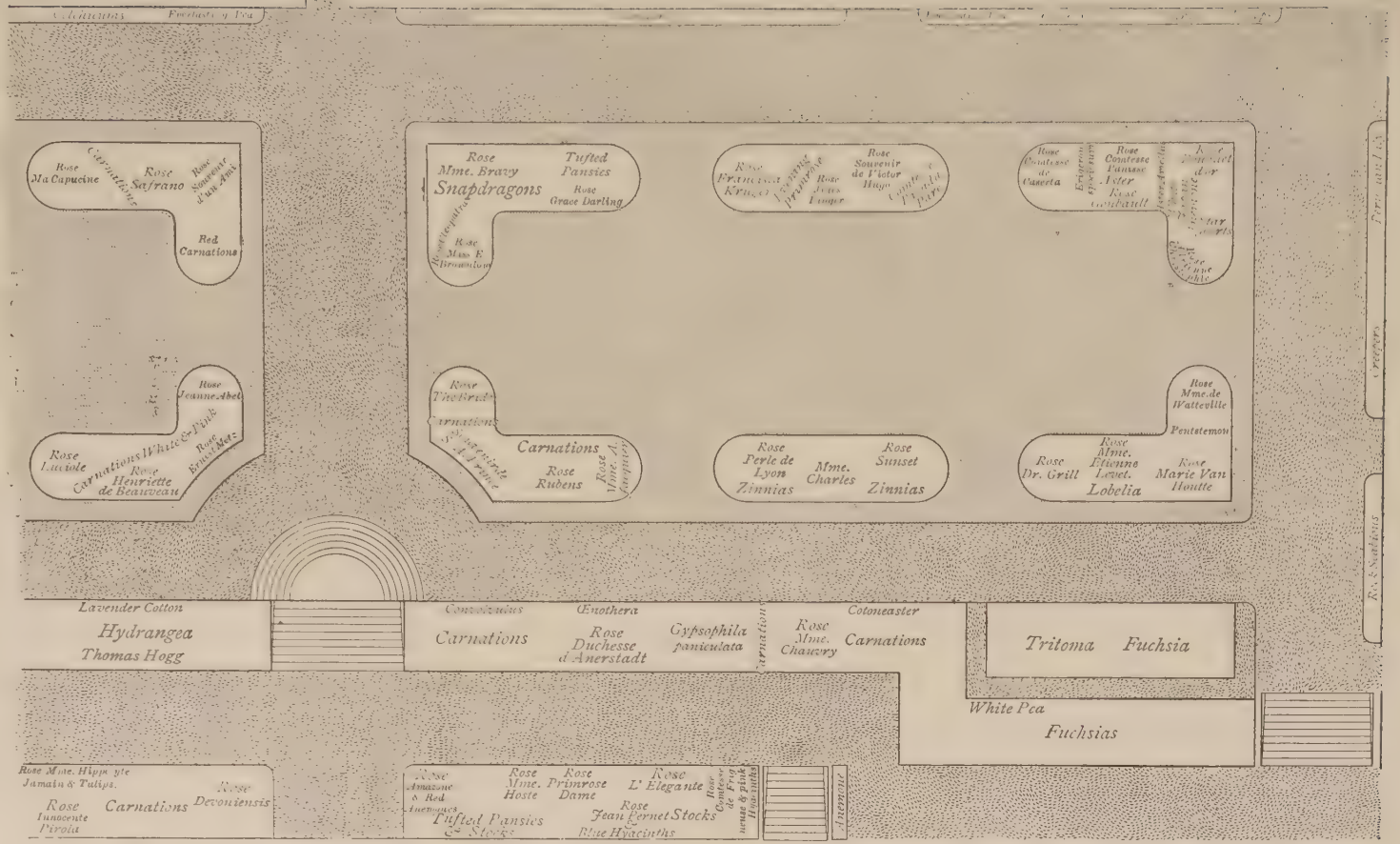
The new flower garden at Shrubland Park is situated exactly in front of the house and tells its own story. The plan shows the



Hawley flower garden.

simple form of beds adopted, planned to suit their places, in lieu of the complex pattern beds for carpet bedding, sand, coloured brick, and also the change from such gardening to true flower gardening. The names of the plants used are printed in position, but the actual way of grouping cannot well be shown in such a plan—the plants are not in little dots, but in easy, bold groups here and there running together. The flower gardening adopted is permanent, *i.e.*, there is no moving of things in the usual wholesale way in spring and autumn. The beds are planted to stay, and that excludes spring gardening of the ordinary kind. But many early spring flowers are used in the garden, the mainstay of which is summer and autumn flowers, the period

Shrubland Park.



The new flower garden in front of house at Shrubland Park, showing simple forms of beds filled with the most beautiful hardy flowers in groups and colonies, and many Tea Roses and Carnations. Plan and planting by author (replacing Sir C. Barry's).

chosen for beauty being that when the house is occupied and all beautiful hardy flowers from Roses to Pansies that flower from May to November are those preferred. There is no formality or repetition in the flower planting but picturesque groups, here and there running together, and sometimes softened by dwarf plants running below the taller ones. The beds are set in a pleasant lawn, and there is easy access to them in all directions from the grass.

Hazel catkins. From a drawing by H. G. Moon.

CHAPTER XXIX.

WALKS AND EDGINGS.

OUR gardens are often laid out with so many needless walks, edgings, and impediments of many kinds that work cannot be done in a simple way, and half the time is lost in taking care of or avoiding useless or frivolous things. In many large places there is no true flower gardening; wretched plants are stuck out in the parterre every year, a few stunted things are scratched in round the choke-muddle shrubbery, and but little labour or love is bestowed on the growth of flowers, or there are miles of walks bordered by bare stretches of earth, as cheerful as Woking cemetery in its early years. The gardener is helpless to turn such a waste into a paradise; his time and his thoughts are often taken up by the keeping in order of needless and often ugly walks, leaving him little time for true flower gardening, that is forming a real garden of Roses, or groups of choice shrubs, or beds of Lilies, or of other noble hardy plants, so that the beds may fairly nourish their tenants for a dozen years. Instead of the never-ending and wearisome hen-scratchings of autumn and spring, we ought to prepare one portion of the flower garden or pleasure ground each year, so that it will yield beauty for many years. But this cannot be done while half the gardener's time is taken up with barber's work.

Our own landscape gardeners are a little more sparing of these hideous walks than the French; but we very often have twice too many walks, which torment the poor gardener by needless and stupid labour. The planning of these walks in various elaborate ways has been supposed to have some relation to landscape gardening; but one needless walk often bars all good effect in its vicinity. Flower-beds are often best set in grass, and those who care to see them will approach them quite as readily on grass as on hard walks. For the three or four months of our winter season there is little need of frequent resort to flower-beds, and for much of the rest of the year the turf is better than any walk. I do not mean that there should be no walk to the flower garden, but that every walk not necessary for use should be turfed over. Few have any idea how much they would gain, not merely in labour, but in the beauty and repose of their gardens, by doing away with needless walks.

Gravel walks.

For hard work and general use the gravel walk is the best of all for garden and pleasure grounds. The colour of walks is important; that of the yellow gravels being by far the best. Of this we have examples in the country around London, in the gravels of Croydon, Farnham, and also those of Middlesex. These walks are not only good in colour but also excellent in texture. It is a relief to see these brownish-yellow walks after the purple pebble walks of the neighbourhoods of Dublin and Edinburgh. After the sound formation of these walks the main point is to keep them to the essential needs of the place, and when this is done their effect is usually right. Even this excellent gravel is sometimes improved about London by the addition of sea shells, cockle shells mostly gathered from the coasts of Kent; and, after the walk is formed and hardened, this is lightly scattered over the surface and rapidly breaks down and gives to the walk a clean smooth surface.

In public gardens and parks large areas of gravel are sometimes necessary, and in some ways of "laying out," such as those round French châteaux, wide arid areas of gravel are supposed to have a *raison d'être*; but in English gardens they are better avoided. English roads, lanes, and pathways are often pictures, because consecrated by use and often beautiful in line, following as they often do lines of easiest grade or gentle curves round hills; but in gardens, roads and paths are often ugly because overdone, and nothing can be worse than hot areas of gravel, not only without any relation to the needs of the place, but wasting precious ground that might be made grateful to the eye with turf, or of some human interest with plants.

Stone walks in small gardens.

A walk which is much liked is the stone walk, suggested by the little stone paths to cottages. In large open gardens such walks would not be so good, but in small enclosed spaces and flower gardens where we have to plant very closely in beds, stone walks are a gain. In some districts a pretty rough flat stone is found, of which there is a good example at Sedgwick Park. In cities, when renewing the side-walks, it is sometimes easy to get old flagstones, which are excellent for the purpose. I use such old stones and mostly set them at random, or in any way they come best. The advantages are that we get rid of the sticky surface of gravel in wet weather or after frost, avoid rolling and weeding, for the most part the stones are pleasant to walk on at all times, and we can work at the beds or borders freely in all weathers without fear of soiling gravel. The colour of the stones is good and in sunny gardens in hot summers they help to keep the ground

moist, while the broken and varied incidents of the surface get rid of the hard unyielding lines of the gravel walk and help the picture. They should never be set in mortar or cement of any kind, but in sand or fine sandy soil, and the work can be done by a careful man with a little practice. If in newly-formed ground there is a little sinking of the stone, it can be corrected afterwards. Small rock plants, like Thyme, the Fairy Mint, and little Hairbells, may be grown between the divisions of the stone, and, indeed, they often come of themselves, and their effect is very pretty in a small garden. Another point in favour of the stone walk is that it forms its own edging, and we do not need any living edging; and if for any purpose, in a wet country or otherwise, we wish to somewhat raise the flower-beds, we can use the same kind of stone for edging the beds.

Grass, heath, and moss walks.

Once free of all necessary walks about the house of gravel or stone, which constant work and use make essential, it is often easy in country gardens to soon break into grass walks which are pleasantest of all ways of getting about the country garden or pleasure ground. Not only can we take them into the wild garden and rough places, but they lead us to flowering shrubs and beds of hardy plants and to the rock garden, or through the pleasure ground anywhere, as easily and more pleasantly than any regularly set out walks. There is much saving of labour in their formation because, given sound drained ground, which is to be found around most country houses, we have little to do except mark out and keep the walks regularly mown. When this work is compared with the labour of carting, the knowledge and the annual care which are necessary to form and keep hard walks in order, the gain in favour of the grass walk is enormous. It is perhaps only in our country that the climate enables us to have the privilege of these verdant walks, which are impossible in warmer lands, owing to the great heat destroying the herbage, and, therefore, in Britain we should make good use of what our climate aids us so much in doing.

We have, of course, to think of the fall of the grass walk for the sake of ease in mowing and in walking too, as very much of their comfort will depend, at least in hilly ground, on the careful way these walks are studied as regards their gradation. There is really not much difference in the degree of moisture in such walks and gravel walks, and, besides, so little use is made of walks of any kind in wet weather, that, taking them all the year round, they serve as well as any other.

Apart from the grass walks which can be formed in so large an area of Britain we may have walks through Heath and the short vegetation that grows in heathy districts, and these walks will be no

less pleasant than the grass walks. The short turf of the Heath, and often the mown Heather itself, forms an excellent springy walk, as in parts of Surrey. Such walks want little making, only some care in laying down their lines so as to take them into the prettiest spots and letting them edge themselves with Heather, Ferns, and Whortleberry. But no more than any other should such walks be multiplied beyond what is necessary, and they ought to be broad enough and airy enough to take us in the pleasantest way to the most interesting parts of the garden or pleasure ground or woods. In woody or half shady places we may enjoy the mossy walks as in very sandy or light soils we may have a turf almost of Thyme.

Concrete and asphalt walks.

There are also well-made walks to be had from concrete and true asphalt. These walks have distinct advantages for courtyards and small spaces, or even small gardens in certain places; they are better in colour than the tarred walk, and more enduring if well made. They are clean, but they have certain disadvantages as compared with stone walks. They require a much more expensive and careful setting, and they are certainly not more enduring. Also, they do not allow us the privilege of putting plants between the joints, one of the great charms of the stone walk, which can be easily set to allow Thyme and dwarf-rock plants to come up between them; and therefore in all districts in which a warm-coloured stone is procurable or rough flagstone from quarries, it is very much better to use it as we can always have gravel for any roads that have to be traversed by carriages or carts; the space for concrete, asphalt, or stone walks is not considerable, and the natural material should be used wherever it be possible.

Edgings, live and dead.

Even small things may mar the effect of a flower garden, however rich in its plants, and among the things that do so are cast edgings of tiles or iron, often very ugly, and as costly as ugly, some of the earthenware edgings perishing rapidly in frost. But if they never perished, and were as cheap as pebbles by the shore, they would be none the less offensive from the point of view of effect, with their hard patterned shapes, often bad colour, and the necessity of setting them with precision in cement or mortar; whereas the enduring and beautiful edging wants none of these costly attentions. The seeming advantage of these patterned and beaded tile edgings is that they appear permanent, and get rid of the labour of clipping and keeping box edgings in good order; but these ends are met quite as well by perfectly inoffensive edgings.

The true way in all gardens of any good and simple design is to get edgings which, while quite unobtrusive in form or colour, may

remain for many years without attention. In all good gardens there is so much to be done and thought of every day in the year, that it is important to get rid of all mere routine work with edgings of Box and other things that want frequent trimming or re-making, in which work much of the labour of gardeners has been wasted in the past.

Natural stone.

Natural stone is the best of all materials for permanent edgings for the flower garden, or any garden where an edging is required, and no effort should be spared to get it. In many districts it is quite easy to do so, as in some of the home counties the refuse of quarries (in Surrey Bargate stone, and in Oxfordshire and Gloucestershire the flaky stone

Stone edging. From a photograph by Mr A. Emblin, Worksop, Notts.

used for the roofs of old time) is excellent for edgings. Much difference will occur in stone in various districts, and some will not be so good in colour and shape as the stone just mentioned, but the advantage of natural stone in various ways is so great that even inferior forms of it should be chosen before any other material. In undressed, or very roughly dressed natural stone, it does not matter in the least if the stones vary in size, as we have not to set them rigidly like the cast tiles. Sunk half-way firmly in the earth, after a little time they soon assume a good colour; green mosses stain them in the winter, and if we wish to grace them with rock flowers they are very friendly to them, and Rockfoil, or Stonecrop, or Thyme may creep over them, and make them prettier than any edging made wholly

of plants, like Box or Thrift, or Ivy. Unlike the tile, stones are none the worse if they fall a little out of line, as they are easily reset, and also easily removed by handy garden men without expensive workmen, or any aid from mortar or trowel. In large and stately gardens dressed stone may be used to frame a grass plot or handsome straight border, but in most cases this expense would be thrown away, as we get so good a result with the undressed stone. But in a flower garden like that at Shrubland Park, the dressed stone of good and simple form, and properly set as it should be in such a position near the house, is quite rightly used. Near cities and towns the removal of old or half-worn stone pavements, like the York stone used in London, often gives us opportunities of securing it for forming edging; and being often got in large pieces it requires rough dressing to allow of its being firmly and evenly set in the ground. I have used this largely for edgings, which will last as long as they are allowed to remain. The beautiful green stone of Cumberland would make as good an edging as one could desire, and many kinds of stone may be used.

Edging of Foam Flower.

In districts where there is no stone to be had, and we have to use any kind of artificial stone or terra cotta, these should never have any pattern or beading, but be cast in quite simple forms, never following the patterns usually adopted by the makers of garden tiles. Certain inferior forms of dead edgings should be avoided, such as boards, that soon rot, and are wholly unfit in all ways as edgings. Iron, too, as used in continental gardens or in any shape, should never be used as an edging, ordinary bricks half set in the ground being far better than any of these.

Bold evergreen edging to rough border.

Grass edgings sometimes are used to flower borders, but are always full of labour and trouble. And they have various drawbacks, apart from the mowing and edge-cutting, chief among these being that the border flowers within cannot ramble over them as they do over

Grass edgings.

the stone edgings in such pretty ways. These narrow grass margins are often used as edgings to flower borders in the kitchen garden in places where very little labour is to spare for the garden, but, little as it is, it has to be given throughout the season to these grass edgings, which are worse than useless as a finish to a flower border. By these I do not mean the grass margins to the garden lawns, or a carpet of turf, as these are easily attended to when the lawn is being mown, but the foot-wide grass edgings which require attention when time can be badly spared for them, and are often so narrow that it is not easy to use a machine for mowing them.

Box.

Of all the living things useful as edgings in gardens, the first place belongs to Box, for ages used and deservedly liked from its neat habit and good colour. When there were many fewer plants to look after than we have now, to tend some miles of Box edging was often the pride of the gardener, and even now we see it sometimes done, though the hand often fails through the labour required to keep the Box in good order, and the edging gets spotty and in some soils worn out and diseased. A Box edging must be clipped with much care and regularity every May after the danger of hard frosts is past, as these sometimes touch the young growth. If cut in May the young growth soon hides the hard mark of the shears. Pretty as it is in certain gardens, the drawbacks to Box as a flower-garden edging are serious; it requires much labour to keep it in order, and not every garden workman can clip it well. It is a harbour for slugs and weeds, drying and starving the soil near, whereas the stone edging keeps the soil moist and comforts the rock flowers that crawl over it. We cannot allow dwarf and creeping plants to crawl over the Box, or they will scald and injure it, but with the stone, we are free in all ways, and get a pretty effect when Pinks and other dwarf plants, crossing the stone edging here and there, push out into the walk itself. I like Box best as a tall, stout edging or low hedge, used in a bold way as high Rosemary edgings are used in southern gardens about 18 inches high, or even a little higher, to enclose playgrounds or separate gardens or to mark an interesting site as that of the old house at Castlewellan. Sometimes old and neglected Box edgings grown into low hedges are pretty in a garden, as in George Washington's old home at Mount Vernon in Virginia. And low hedges of Box are now and then a good aid near the flower garden, as at Panshanger.

Among other edgings made of woody or shrubby things, we have the Yew, which bears clipping into edgings a foot high, and which might be worth using in some positions, though much clipping of this sort causes much labour and to me sorrow. Ivy is more

precious for its shoots, which garland the earth as well as wall or tree. It is more used abroad than in Britain, the freshness of its green being more valued where good turf is less common, and Ivy is of the highest value as an edging in various ways, but better as a garland round a plot or belt of shrubs than near flower-beds, and as graceful edgings near and under trees. Like the Box, it may also be used as a bold hedge-like garland to frame a little garden or other spot which we wish to separate from the surrounding ground. The Tree Ivy is best for this, but the common Ivy, if planted as an edging in any open place, will in time assume the shrubby or

Ivy, Rosemary, and other edgings.

Ivy edging.

tree form, and make a handsome and bold garland. Where, for any reason, we desire Ivy edgings, it is better not to slavishly follow the French way of always using the Irish Ivy for edgings. The dark masses of this in the public gardens of London, Paris, and German cities are very wearisome, and help to obscure rather than demonstrate the value of the Ivy as the best of all climbers of the northern world. The common Ivy, of which the Irish form is a variety, is a plant of wide distribution throughout Europe, North Africa, and Asia, and varies very much in form, there being in Britain over fifty cultivated forms of it. The Irish variety seems to have taken the fancy of continental European gardeners, and is much more cultivated by them than any other, but many of the other varieties though less known are more graceful and varied in form, and even colour, some of them having in winter a bronzy hue, instead of the dark look of the Irish Ivy. Some, too, are fine in form, from the great Persian Ivy to the little cut-leaved Ivy. Even the common Ivy of our woods is prettier than the one so much used.

Among the bold edging one sees enclosing the "careless" and broad borders of Spanish or Algerian or other southern gardens, over-shaded by orange or other fruit trees, is the Rosemary, clipped into square topped bushy edges, about 15 inches high. Though tender in many parts with us, it may be used in the same way on warm soils and in mild districts, and the Lavender may be used in the same way, though in its case it is best not to clip it, and there is a dwarf form, which is best for edgings to bold borders.

Dwarf evergreen edgings.

Among various evergreen shrubs which may be used as edgings are the dwarf Cotoneasters, Periwinkles, smaller Vacciniums, Partridge Berry, the alpine forest Heath, and some of the smaller kinds of our native Heaths, varying them after the nature of the soil and the kind of plants or shrubs we are arranging; Heaths and shrubs of a like nature being best for association with peat-loving evergreen shrubs, though they need not all be confined to these or to such soils. Such evergreen edgings of low shrubs are often very useful where we plant masses of select evergreen flowering shrubs, and they may be used in free belts or groups as well as in hard set lines, the last being in many cases a sure way to mar the effect of otherwise good planting in pleasure grounds.

Plastered margins.

Here is an illustration showing a wretched mud edging. These miniature ramparts, though less common than formerly, are a blot in London gardens and parks. They are made of muddy compounds, and in addition to the offensive aspect of the little walls when first plastered up, there are the cracks which come after—well shown in the cut. In a hot year, or any year, it is madness to cock the beds upon a little wall like this. The proper way to make a flower-bed is to let the earth slope gently down to the margin, as was the practice for ages before this ugly notion came about.

Example of ugly cracked mud edging (London Park).

Trials of Edging Plants.

These are only well done where there is stone edging of some kind. In my youth I saw many miles of Box edgings being clipped, and endless labour bestowed upon such wasteful work done at a season when essential work was pressing. With a garden of my own I made up my mind to stop all such waste, and got some old York stone paving, which, broken up, made edgings to last for hundreds of years; also, rough sandstone rock gave bolder edgings

for shrubs. Given these stone edgings, I enjoyed much beautiful life of alpine and rock plants, which liked the edging stone as much as any rock garden. In this way may be grown numbers of beautiful plants to give an added grace of colour and flower. To give an idea of the result of this plan and of the plants that have given me the most pleasure is the aim of this chapter.

The Wall Hairbell (*Campanula muralis*).—Of all the plants used, this is the most long-lived and useful. Other Hairbells of the mountains are difficult to grow, and even in careful hands are lost, but this lovely Hairbell creeps up rocks, and even penetrates walls, flowering for years, and so densely that the number of bells in one foot of the line could not be counted. Flowering in early summer, if we cut off the flowers with the shears the plants bloom again right into November.

The Lancaster Geranium (*Geranium lancastriense*).—This plant, native of an island on the coast of Lancashire, has given as much pleasure as any plant of the alpine rocks. It is dwarf, flowers all the summer, is beautiful in colour and habit.

Alpine Forest Heath (*Erica carnea*).—This is not in the flower garden, but bordering beds and walks in the Heath garden, where it is the best early Heath. Beginning to flower early in the spring, it gives way when the sun gets strong. It is from a calcareous country, so it may be used in districts where other Heaths will not grow.

Australian Everlasting (*Helichrysum bellidioides*).—A newly come plant, this surprises me by its fitness for the work, being dwarf, abundant in bloom, and free-growing too anywhere on dry walls and as an edging.

Gentianella (*Gentiana acaulis*).—This is the most precious of all edging plants in the calcareous soils of Ireland and Scotland. In the south of England in ordinary soils it gives way in dry weather and is difficult to establish. One gets over that by placing it behind a stone edging, when flowers may be expected, but never quite so fine as in the soils it loves.

Rocky Mountain Phloxes (*P. subulata* and other dwarf kinds).—We have had these for many years now on the top of a dry stone wall dividing the flower garden from the rising ground, and their fine colours and other qualities have pleased me well in groups, which last for years in good health. Quick to grow, they are among the good edging plants that help to keep down the weeds.

Gauze plant (*Gypsophila repens*).—This has been the best as to endurance, good in colour and long in bloom. It has been more than ten years in one edging without it ever showing a sign of weakness, flowering all the summer and right into the autumn. The pink

variety is as useful as the white. Sometimes other rock plants stray into it, and that is an added charm.

The Dwarf Lavender.—No edging meets with more approval than the Dwarf Lavender. It is more compact than the usual forms, and the flowers are of a deeper colour. Lavender, growing over a vast area on the warmer slopes of the Alps and in many lands around the great sea, varies much, and to that habit we owe this and other forms. The Dwarf Lavender makes a neat edging in the fruit or kitchen garden where the large forms might be in the way.

Turban Hairbell (*Campanula turbinata*).—This, the true plant, is a handsome Hairbell, better for the rock garden than as an edging. I tried it in ordinary cool soil just within the stone edging, where it did well, and in flower the effect was fine. It does not, however, meet my wants as a good edging to a flower-bed; it should bloom throughout the summer.

Mountain Sandwort (*Arenaria montana*).—This fine rock plant makes the loveliest edging of the bolder sort that one could desire, Behind a line of sandstone blocks it flowered beautifully, and is, so planted, very well fitted as a frame for shrubs, hardy and long-enduring.

The Blue Bindweed (*Convolvulus mauritanicus*).—This is the one plant I cannot do without as an edging—most graceful of all in the way it arranges itself, and also on dry walls, which it drapes as no other Bindweed could. A native of the mountains of N. Africa, where I had the pleasure of seeing it in flower in a rocky waste. I generally in autumn take up the plants that have formed an edging in summer, housing some and planting others on a sunny ledge of a retaining wall, in the hope they may live and flower thereon. It seeds freely.

The Pasque Flower (*Anemone Pulsatilla*).—This beautiful plant was, in the carpet-gardening craze, lost to gardens, as all the good things that did not fall in with the false taste of the day were thrown on the rubbish-heap. Some seedlings were planted in the cool loam of the district, and gave a charming variety of colour. This, the finest edging I ever had, was by a fruit garden walk, as in the flower garden I seek things that grace the summer with their flower and even last well into autumn.

Dwarf Tufted Pansies (hybrids of Viola).—A host of these, of often good colours, makes lovely margins to flower-beds of Roses. Easy of increase and culture in cool soils, and best in the cool northern hill land, many fine kinds, like John Quarton and Lady Knox, are well known. This should not prevent us raising seedlings, as in that way we get vigorous plants to form edgings or carpets.

Indian Cinquefoil (*Potentilla dubia*).—In its large family there

must be plants of value for our purpose, but the one named above is the only one that keeps with me as if it liked its task of forming a neat edging studded with clear yellow flowers. Of easy culture in any soil, it never looks as if it wanted to go back to the Himalayas. Some charming silvery-leaved Cinquefoils should make beautiful margins, but so far they are not easy to increase.

An alpine Toadflax (*Linaria pallida*).—A modest, patient, and delightful little creeper running in and out of the stone edging, always increasing and always in flower bordering the Carnation bed or other bed; not a robust plant, but easy of increase, and grows as if it enjoyed the garden.

Pinks (*Dianthus plumarius*).—The welcome fragrance and grey colour of these make them welcome as edgings, and they often give us good effects. In my soil they are not so enduring as on calcareous or free, sandy soil. The Maiden Pink (Dianthus deltoides) is a hardy and bright-flowering plant used with some effect, but the season of bloom is not long. In its vast family in northern and alpine lands there may be some free and hardy enough to make an edging in the choicest flower-bed.

The Siberian Stonecrop (*Sedum Ewersi*).—A stout, grey plant, forming a bold edging, quite hardy and easy of culture and increase in any soil. The Japanese Stonecrop (S. Sieboldi) is even more graceful, but in my soil not so free, and a victim to slugs. So it gets some comfort in a frame, and in spring is promoted to a vase, in which it is happy and quite pleasant to see, even well into autumn.

Purple Rock-Cress (*Aubrietia*).—Of the multitude of rock and alpine plants that come to these islands, this is the most useful, growing on walls, rocks, and wherever a few grains of it are sown. Edgings formed with it are beautiful in every way, those best made of rich purple kinds. At one time different Latin names were given to the forms of the plant, but they are all varieties of one mother plant, though varying much in lovely colour, and all as hardy as the Dock. Their flowering season is early, and usually three months long. The growth is so dense that the plants are able to keep free of weeds.

Rockfoils (*Saxifraga*).—The mossy kinds grow freely in cool soil, but are apt to perish in a dry one, and are only useful in shade. The Silvery Rockfoils I used with good result, but these are apt to get patchy in time, and the flowers are rather in the way. Yet I am grateful to them, for silvery leaves of the Aizoon group often carried me through before getting so keen on the plants that grace the beds with their flowers all the summer.

Great Indian Rockfoils (*Megasea*).—These I make extensive use of in margining large groups of flowering trees. Bold, free, and taking on often a good colour, they are excellent rightly used, and

have the good quality of keeping off weeds. They are among my friends for that reason, and are valued not for narrow edgings, but may well spread into effective belts here and there about the shrubbery. In very hard winters the leaves may be injured, but they soon recover, and have kept many a corner at peace for years in the poorest soils.

Barrenworts (*Epimedium*).—Having plenty of these, they were tried as a stout edging, framing, so to say, large masses of shrubs and fruit trees in the orchard, and the way they have done it deserves a word. Hardy, strong growers, and with a fine classic form of leaf, good as winter colour, they formed a noble frame to the groups, and did not allow a weed to come near.

The Japanese Stonecrop (*Sedum spectabile*).—Long an admirer of this tall Stonecrop, I tried it around a mass of Rhododendrons and other bold shrubs, and there it throve and made a lovely belt of colour every autumn for over twenty years. But in war-time the shrubs began to encroach, and the unmown Grass to come in, and so we had to change it.

Thymes (*Thymus*).—These fragrant turfy plants tempt one to make edgings of them, and they charm so used on warm or calcareous soils, not so good on cold soils except on raised banks or rock garden. T. micans I use as a modest green edge. Some of my Thymes puzzle me, stubby little cushions in flower, and there must be good hardy edgings among the many species known on the northern hills.

The Carpathian Hairbell (*C. carpatica*).—There are several good forms of this fine plant, a white and delicate intermediate colour, between white and blue. All mixed formed an attractive edging to a bed of Rose Zephirin on its own roots. A good perennial, may it remain long at its post.

Hepatica (*Anemone Hepatica*).—Often too scarce for edgings, and barely seen as poor forgotten dots, I have at last taken courage and made some edgings of it in the past fine October days. But as it has a poor chance in the open sun, it is used to border the paths under the pergola, where the shade will be right for its health. The plants are all of the wild blue kind, never having seen any of the variations so good.

The Silvery Speedwell (*Veronica candida*).—This, an old friend of the rock garden, has proved a good edging plant in leaf, effective at all seasons and with rich purple flowers in early summer, growing in any soil and of easy increase. Among the many New Zealand Speedwells there may be one or more good edging plants, but I never found one, save V. Lyalli, which is hardy, but not very effective in leaf or flower.

The Forget-me-nots.—Of these, the best is the true Forget-me-not

and its forms, which make a pretty, broad edging to a mass of shrubs in cool soils and have been sometimes charming and free in bloom, but a little wayward and apt to get longing for the streamside, and then to get "seedy." Also as soon as the aphides find them in the garden out they swarm so as to make them no longer look like a Forget-me-not. On the waterside this does not happen, as the aphides have no love for the water. The Swiss Forget-me-not makes a pretty blue edging, but to keep it in health it wants frequent replanting.

The Dwarf Partridge Berry (*Gaultheria procumbens*).—This dwarf evergreen makes an admirable edging for beds of choice evergreens. It is not fit for the flower garden, which should be in the full sun. It is easy to grow and increase in any free soil. The larger Partridge Berry (G. Shallon) of N.W. America is too strong for edgings, but is a fine evergreen in the wood and a fine low foreground shrub.

The hardy Leadwort (*Plumbago Larpentæ*).—An old Chinese plant of our gardens, often neglected, this forms a beautiful edging on the brow of a low wall, and now, as I write, in mid-November, is fine in colour. Of easy culture and facile increase by division, it has also the added advantage of keeping the weeds off. A close grower, even the Goutweed does not infringe on its ground. An excellent border for a large bed in an open sunny spot in any poor soil.

Sand Pink (*Tunica Saxifraga*).—This little plant is always in flower during summer and autumn, and is a favourite of mine. It is common on the sand-heaps in N. Italy; is freely raised from seed and hardy.

Blue Gromwell (*Lithospermum*).—This makes a beautiful edging where it has room to spread out over the stone or where it will. In free soils it is quite hardy and lasting, and exquisite in colour, but not so good on cold soil.

A rock Knotwort (*Polygonum vaccinifolium*).—This free and hardy plant is useful for edging groups of the larger shrubs, for which it answers well. Is easy to increase and hardy.

Tufted Pansies.

CHAPTER XXX.

THE FLOWER GARDEN IN THE HOUSE.

ONE of the real gains in any flower garden worthy of the name is that we have in it lovely forms and delicate colours for the house, from the dawn of spring with its noble Lenten Roses on sheltered borders, until autumn goes into winter in a mantle of Starworts. Many English and all German and French flower gardens in parterres offer us only Lobelias, and various plant rubbish of purplish or variegated hues, very few of them worth cutting, whereas our real flower garden is a store of Narcissus, Azalea, Rose, Lily, Tulip, and Carnation, and all the fairest things of earth. All we have to care about is placing them in simple ways to show their form as well as colour. Apart from the good plan of having a plot for the culture of any flowers we wish to cut for the house, a true flower garden will yield many flowers worthy of a place on an artist's or any other table for their forms, colour, or fragrance. Many of these, from the Narcissus to the Tea Rose, give flowers so freely that we need not be afraid to cut; indeed, in many cases, careful cutting prolongs the bloom (as of Roses). Many shrubs we may improve as we cut their branches for the house, for example Winter Sweet, Forsythia, and Lilac.

It is not merely the first impression of flowers, good as it may be, that we have to think of, but the charms which intimacy gives to many of the nobler flowers—some opening and closing before our

eyes, and showing beauties of form in doing so that we never suspected when passing them in the open air. In the changing and varied lights of a house we have many opportunities of showing flowers in a more interesting way, particularly to those who do not see them much out of doors. We have in gardens many new flowers of great beauty of form — Californian, Central Asiatic, Japanese, even the mountains of China and India giving precious things, as well as the rich flora of North America as yet not as much seen in our gardens as it deserves to be. So that it will be seen how good is the reason why care should be given to show the flowers in the house when we have them to spare out of doors.

Rose in a Japanese bronze basin.

At first sight there may not seem much against our doing justice to flowers in the house, but our flower vases have shared the fate of most manufactured things within the past generation, and suffer from the mania for overdoing with designs called "decorative," which is supposed to have some connection with "art." Every article in many houses being overcharged with these wearisome patterns, it was not to be expected that the opportunity of "adorning" our flower-pots would be lost, and so we may have ugly forms and glaring patterns, where all should be simple in form, and modest and good in colour. The coal-scuttle, with its "decoration," does not stand in our way so much as the flower vase, as in this we have to put living things in their delicate natural colours and shapes, and to look at these, stuck

in vases with hard colours and designs, is impossible to the artistic mind.

And when we have seen the ugliness of much of this work, what is to be done in the way of remedy, as the shops are so much against us? The first need is a great variety of pots, basins, and jars or vases; so that no flower that garden, wood, or hedgerow can give us, need be without a fitting vessel the moment it is brought into the house. What are known as the Munstead glasses are a great help, because their shapes are carefully made to suit various flowers, and they are very useful and good in form—made, too, of plain glass; but, however good this series is, it is well to use a variety of other things in any simple ware that comes in our way, very often things on the way to the rubbish heap, such as Devonshire cream jars in brown ware. Nassau seltzer bottles, in the brown ware too, may well take a single flower or branch, while old ginger pots, quite simple shallow basins in yellow ware, and other articles made for use in trade, come in very well.

Flower vases simple in form.

There is no need to exclude finer or more costly things than these if good in shape and not outrageous in colour, but various reasons lead us to prefer the simpler wares, in which the flowers look often quite as well as in any others. A mass of Edith Gifford Rose looks very well in a good old silver bowl, and good china, silver, or bronze vases or basins may be used for choice positions or occasions, though it will generally be best not to submit fine or fragile vessels of this kind to the risks of constant use. Among the finest things ever made in the shape of vases for cut flowers is the old Japanese work, which is often as lovely in form and as beautiful with true ornaments as anything made by the old Greeks; but the Japanese, like others, have taken to "potboiling" in bronze, and many of the things now seen at sales in London are coarse in workmanship. It might be worth while to have good and avowed reproductions of some of the more useful old forms—the slender, uprising ones are so good for many tall flowers; Italian bronze bowls are often useful too; and the darkness within the bronze vessels tends to keep the flowers longer than when they are in glass vessels exposed to the light.

Japanese ways of arranging flowers are extremely interesting, and may sometimes be practised with advantage; but, with a great variety and good shape of vessels, the Japanese way is not so necessary as a system, for the reason that, given a variety of good shapes and different materials, we can place any single flower, branch, or bunch in a way that it will look well with very slight effort and in very little time. Any way involving much labour over the

arrangement of flowers is not the best for us or for the result—far from it.

Arranging flowers in vases, etc.

Having got a good and constant supply of flowers, and variety of vessels, the question of arrangement is the only serious one that remains to be thought of, and it is not nearly so difficult if we seek unity, harmony, and simplicity of effect, rather than the complexities which we have all seen at flower shows and in "table decorations," many of them involving much wearisome labour, while a shoot of a wild rose growing out of a hedge, or a wreath of

Lenten Roses, February.

Honeysuckle, would put the whole thing to shame from the point of view of beauty. In all such matters laying down rules leads to monotony, and yet there is much to be said for ways distinctly apart from the old nosegay masses and the modern jumble, and generally it is best to show one flower at a time, especially if a noble one like the Carnation, which varies finely in colour. The baskets and basins of Carnations arranged by the late Lady Henry Grosvenor, at Bulwick, were lovely to see, and the best of them were of one Carnation of good colour. These were the flowers from her fine collection of outdoor Carnations, so useful for cutting in summer and autumn, when people are enjoying their gardens. But the improved culture of the Carnation as a plant for winter and

spring bloom under glass gives us quantities of this precious flower for six months more when the outdoor supply is over. These are among the best flowers for the dinner table as well as the house generally, and on the dinner table the effect by artificial or by natural light of one or two flowers of the season is often better than that given by a variety of flowers. What is just said of the Carnation applies to various noble groups of hardy flowers, such as the Tulip, Narcissus, and Lily.

Mexican Orange-flower.

It is not only in vases we see the good of showing one flower or group at a time; a good result will often come through a single spray or branch of a shrub. The Japanese have taught us to see the beauty of form and line in a single twig or branch, with its natural habit shown, apart from any beauty and form or colour its flowers may have. This is important, in view of the many shrubs that flower in our climate in spring, and of which if flowering shoots are cut when in bud the flowers open slowly and well in the house. They are best placed in Japanese bronze or other opaque jars. The taller Japanese bronze jars with narrow necks are very useful for these, and it is an excellent practice to

cut the bud-laden shoots of Sloe, Plum, Apple, Crab, and like plants, and put them in jars to bloom in the house. By this means we advance their blooming time; and, in the case of severe weather, the beauty of early shrubs may be lost to us unless we adopt this plan. We see how well the French practice of growing Lilac in the dwelling-house prolongs the beauty of this shrub, and it is not

Foliage of Evergreen hardy plant (Epimedium).

difficult to do something of the kind for the hardy shrubs and early trees that come with the Daffodils, but are not so well able to brave the climate. These shoots of early shrubs are also usually best arranged each by itself, though some go well together, and graceful leaves of evergreens may be used with them. One advantage of dealing with one flower at a time is that we show and do not conceal the variety of beauty we have. For, if all are thrown together, that variety will be much less evident than if we make clear the

colour and form of each kind. Some proof of this may be seen in the work of the best flower-painters. In the work of M. Fantin-Latour, for example, his nosegays of many flowers, evidently bought at some country market stand, are painted as well as his simple subjects, but these last are far the best pictures. There is such a wide range of plants, shrubs, and woodland and hedgerow flowers, that we must not hesitate to depart from any general idea if it tends to keep us from making the best of things in simple and ready ways.

Water-Lilies for the house.

Often the water and the water-side will give us fine things for the house, and the new Water-Lilies of rare distinction if cut in the freshly expanded state will keep very well for some days and give us quite a new order of beauty. For them we want bold and simple basins, as, if we can put some of their handsome leaves in with them, the effect is all the better. Although very fine in the open water, where they do admirably, the effect of the flower near at hand in the house is quite different and very beautiful, and as these plants increase their value as cut flowers for the house will be found to be great. There are also plants of the water-side which may help with foliage or flower; one of the best being the Forget-me-not, which flowers so well in the house, and the great Buttercup.

Leaves.

Many as are the flowers of the open air excellent for house, the leaves of the open air tree or shrub or plant are hardly of less use for the same end: notably the foliage of evergreen shrubs in warm and sea coast districts, from evergreen Magnolia, Poet's Laurel, Cypress, Juniper and Thuja, Cherry Laurel, and Bamboo; even in the coldest districts we have the evergreen Barberry, and more than fifty forms of the best of all evergreen climbers, the Ivy, and the Holly with its scarlet, yellow, or orange berries. The trees in autumn give us leaves rich in colour—Maple, Medlar, Mespilus, Parrotia, Tulip-tree, and many others. The shrubs and climbers, too, help—Bramble, Wild Roses, Water Elder (Viburnum), Common Barberry, with its graceful rain of red berries; Vines in many forms; hardy flowers, too, help with Acanthus, Alexandrian Laurel, Solomon's Seal, Iris, Plantain Lily. Rock plants are rich in good leaves: Cyclamen, Heuchera, Christmas and Lenten Roses, the large Indian Rockfoils and the Barrenworts; and then there are the hardy Ferns of our own country and Europe, and also those of North America as hardy as our own.

A great help in a house is a handy water supply in a little room near the flower garden or usual entrance for flowers, where vessels

may be stored and flowers quickly arranged, used water and flowers got rid of, and so planned that the mistress of the house, or whoever arranges the flowers, may use it at all times without other aid. This greatly helps in every way, and makes the arrangement of flowers for the house more than ever a pleasure.

The Chimney Campanula, Staunton Court.

CHAPTER XXXI.

EVERGREEN TREES AND SHRUBS.

"Oh the oak and the ash and the bonny ivy tree,
They flourish at home in my own country."—*Old Ballad.*

THE above lines might be worth thinking of by those bent on planting evergreens, as if it were borne in mind that the evergreens we plant have to face winters in an Oak and Ash land, we should have less of rampant but not hardy evergreens which perish in numbers after hard winters.

There are no background hues prettier than those afforded by some evergreens like the Yew, Box, and Ilex; but their use requires care; we may have too many of them, and they should not take the place of flowering shrubs and flowers of many kinds. It is outside the flower garden that evergreens are most useful, and in a cold country like ours, especially on the eastern coasts and in wind-swept districts, Holly banks and hedges of other hardy evergreens are often a necessity. In our country we have the privilege of growing more evergreen shrubs and trees than continental countries, species resisting winter here which have not the slightest chance of doing so in Central Europe.

Native evergreens.

Into our brown and frozen northern woods come a few adventurers from southern lands that do not lose their green in winter but take a deeper verdure—Ivy, Holly, and Yew enduring all but the very hardest frosts that visit our isles, some bright with berries as well as verdure—giving welcome shelter to northern and wind-swept gardens, and in our own time each varying into many noble varieties. These native evergreens and their varieties are, and for ever must be, the most precious of all for the British Isles.

When after a very hard winter we see the evergreen trees of the garden in mourning, and many of them dead, as happens to Laurels, Laurustinuses, and often even the Bay, it is a good time to consider the hardiness and other good qualities of our British evergreens and the many forms raised from them. If we are fortunate enough to have old Yew trees near us, we do not find that a hard

winter makes much difference to them, even winters that brown the evergreen Oak. We have collected within the past two hundred years evergreen trees from all parts of the northern world, but it is doubtful if any of them are better than the common Yew, which when old is often picturesque, and which lives for over a thousand years. Of this great tree we have many varieties, but none of them quite so good as the wild kind when old. In the garden little thought is given to it, and it is crowded among shrubs, or in graveyards, where the roots are cut by digging, so that one seldom sees it in its true character when old, which is very beautiful.

The Holly.

After the Yew, the best of our evergreen shrubs is the Holly, which in no other country attains the beauty it does in our own; certainly no evergreen brought over the sea is so valuable not only in its native form, often attaining 40 ft. even on the hills. Not merely as a garden tree is it precious, but as a most delightful shelter around fields for stock in paddocks and places which want shelter. A big wreath of old unclipped Holly on the cold sides of fields is the best protection, and a grove of Holly north of any garden ground is the best evergreen we can plant for shelter; the only thing we have to fear being rabbits, which when numerous make Holly difficult to establish by barking the newly-planted trees, and in hard winters even barking and killing many old trees. As to the garden, we may make beautiful evergreen gardens of the forms of Holly alone.

Notwithstanding the many conifers brought from other countries within the past few generations, as regards beauty it is very doubtful if more than one or two equal our native Fir. In any case few things in our country are more picturesque than old groups and groves of the Scotch Fir; few indeed of the conifers we treasure from other countries will ever give us anything so good as its ruddy stems and frost-proof crests.

Native Ivy.

The best of evergreen climbers is our native Ivy, and the many beautiful forms that have arisen from it. This in our woods arranges its own beautiful effects, but in gardens it might be made more use of, and no other evergreen climber comes near it in value. The form most commonly planted in gardens—the Irish Ivy—is not so graceful as some others, and there are many forms varying even in colour. These for edgings, banks, screens covering old trees, and rocks might be made far more use of. In many northern countries our Ivy will not live in the open air, and we rarely take enough advantage of such a possession in making both shelters, wreaths, and screens. Care is required to keep it off our houses and off cottage roofs or it will damage them; but there are many pretty

things to make of it away from buildings, and among them Ivy-clad and Ivy-covered wigwams, summer-houses, and covered ways, the Ivy.

Evergreen trees in natural forms (Cedars).

Box, which is a true native in certain dry hills in the south of England, is so crowded in gardens that one seldom sees its beauty as one may on the hills full in the sun, where the branches take a

plumy toss. To wander among natural groves of Box is pleasant, and we should plant it in colonies by itself full in the sun, so that it might show the same grace of form that it shows wild on the chalk hills. It is the best of our native evergreens for garden use, making pretty low hedges as at Panshanger, and for dividing lines near the flower garden it is better than Yew or Holly.

Arbutus.

The Arbutus, which borders nearly all the streams in Greece, ventures into Ireland, and is abundant there in certain parts in the south. This beautiful shrub, though tender in midland counties, is very precious for the seashore and mild districts not only as an evergreen, but for the beauty of its flowers and fruit. Still, it is the one British evergreen which must not be planted where the winters are severe in inland districts, and usually perishes on the London clay. It is the best of our native evergreens that deserve the preference, instead of the heavy Cherry Laurels and various evergreens not even hardy, so that after a hard frost we often see the suburbs of country towns black with their dead.

Ugly evergreen trees.

One of the most baneful things in our gardens has been the introduction of distorted and ugly conifers which often disfigure the foregrounds of beautiful houses. These are often sports and variations raised in modern days, as is the case with the too common Irish Yew. It is not only that we have to deplore the tender trees of California, which in their own country are beautiful, though, unhappily, not so in ours, but it is the mass of distorted, unnatural, and ugly forms, the names of which disfigure even the best catalogues, that is most confusing and dangerous. In one foreign catalogue there are no less than twenty-eight varieties of the Norway Spruce, in all sorts of dwarf and monstrous shapes—some of them, indeed, dignified with the name monstrosa—not one of which should ever be seen in a garden. The true beauty of the Pine comes from its form and dignity, as we see it in old Firs that clothe the hills of Scotland, California, or Switzerland. It is not in distortion or in little green pincushions we must look for the charm of the Pine, but rather in storm-tossed head and often naked stems; and hence all these ridiculous forms should be excluded from gardens of any pretence to beauty.

Another most unfortunate tree in this way, as helping to fill out gardens with graceless things, is the western Arbor vitæ (Thuja occidentalis). This, which is a very hardy tree but never a dignified one, even where it grows in the north about Lake Superior and through the Canadas, is, unhappily, also hardy in our gardens, and we may see in one catalogue no less than twenty-three forms of this

tree all dignified with Latin names. There are plenty of beautiful things, new and old, worthy of the name, without filling our gardens with such monstrosities, many of which are variegated. Of all ugly things, nothing is worse than the variegated Conifer, which usually perishes as soon as its variegated parts die, the half dead tree often seeming a bush full of wisps of hay.

Evergreen weeds.

In many once well-planted pleasure grounds the Pontic Rhododendron almost runs over and destroys every other shrub, and hides out the most beautiful tree effects, growing often a little above the line of sight. Even where people have taken the greatest trouble to plant a good collection of trees, the monotony of it, always the same in colour, winter or summer, except when dashed by its ill-coloured flowers, is depressing. The walk from the ruins at Cowdray to the new house is an example that might be mentioned amongst a thousand others of a noble bank of trees, varied and full of beauty, but, in consequence of this shrub spreading beneath them all along the walk, showing nothing but a dank wall of evergreen. This ugliness and monotony come about through the use of the Pontic as a covert plant, and also owing to its facility of growth the beautiful sorts of Rhododendron being usually grafted on it. In a garden where there are men to look after plants so grafted and pull away the suckers, this plan may do, but when planting is done in a bold way about woods, or even pleasure grounds, this is not nor can it always be attended to, so that the suckers come up and in time destroy the valuable sorts. The final result is never half so pretty as in the most ill-kept natural wood, with Bracken and Brier in fine colour and some little variety of form below the trees; therefore everybody who cares for the beauty of undergrowth should cease this covering of the ground with this poor shrub, not so hardy as the splendid kinds of American origin often grafted on it to die. With the Cherry Laurel and the Portugal Laurel it is the main cause of the monotony and cheerless air of so many pleasure grounds.

The nurseryman who grows rare trees or shrubs very often finds them left on his hands, so that many nurseries only grow a few stereotyped things, mainly those that grow freely, and, owing to the over-use of weed-evergreens like Privet, are without beauty, and offensive in odour when in flower. The presence of such things is one of the causes of the miserable aspect of the shrubberies in many gardens, which might be very beautiful and interesting with a varied life. Many shrubs of little or no beauty in themselves very often destroy by their vigour the rare and beautiful garden vegetation, so that we have not only the ugliness of a brake of Laurel, or half-evergreen Privet, or Pontic Rhododen-

dron to survey, but often the fact that these shrubs have overrun and killed far more precious things. And this nursery rubbish having killed every good thing begins to eat up itself, and hence we see so many shrubberies worn out.

The nobler evergreen flowering shrubs.

It is not only the ill-effect of these all-devouring evergreens we have to consider, but that they shut out the evergreen flowering shrubs and trees of the highest beauty of colour as well as of foliage, and the many hardy Rhododendrons of finest colour. If we would only cease to graft them, and instead get them from layers on their own roots, we should not be overcrowded with the R. ponticum of the present system. They are not only hardy, in the sense that many of our popular evergreens are hardy in favoured districts or by the sea, so kind as it is to evergreens, but they are hardy everywhere in England. I mean the many broad-leaved Rhododendrons which have mostly come to us from the wild American species, and are hardy in North and Eastern America. Apart from the use of such things, by carefully selecting their colours we may have not merely an evergreen background of fine and varied green, but also the most precious flowering shrubs ever raised by man and in their natural forms, often varying in fine colour and form too, if we will only cease to compel them to live on one mean and too vigorous shrub.

As to the kinds of Rhododendron that are raised from the Pontic kind, or even from the Indian Rhododendrons, so far as tried they are not in any way so good as the varieties raised from the North American kinds, which have the fine constitution of R. Catawbiense in them, and of which many are hardy not merely in Old England but in the much more severe winters of New England. Apart from plants of these kinds from layers we may also have them as seedlings, though the named kinds from layers give us the means of grouping a finely coloured kind which may often be desirable. It is also very probable that we shall, as various regions of the northern world are opened up, introduce to cultivation other fine wild species, and get precious races from them, so for many reasons the sooner we get out of the common routine of the nurseries in grafting every fine kind we already have on R. ponticum, the better.

Greater evergreen trees.

Apart from trees of poor forms, there are others which are stately in their own country but a doubtful gain to ours, like the Wellingtonia and other Californian trees and the Chili Pine. Sometimes the foregrounds of even fine old houses are marred by such trees, and unfortunately people use them in the idea that they are by their use doing something old-fashioned and

"Elizabethan," whereas they are marring the beauty of the landscape and of our native trees, often so fine, beyond the bounds of the garden. We ought not to spoil the beauty of our home landscapes by using such things, which are so abundant in many places that the nobler exotic evergreen trees like the evergreen Oak are forgotten. This European tree from Holkham in Norfolk to the west of England and in many gardens round the coasts of our islands, is a great evergreen tree and a fine background and shelter.

Cedar of Lebanon.

This is perhaps the finest evergreen tree ever brought to our country and as hardy as our own trees. If we use evergreen trees they ought to be the noblest and hardiest. The loss of this tree by storms could not happen to anything like the same extent if people went on planting young trees. The many catalogues issued, help towards the neglect of the really precious trees by bringing out novelties from all parts of the world—absolutely unproved trees; whilst the planting of such grand trees as the Cedar of Lebanon and the Ilex of Europe are often forgotten. A mistake made in Cedar planting is that of only planting isolated trees with great branches on all sides, an enormous surface exposed to strong wind. In their own country, where Cedars are naturally massed together, although the gales are severe, the trees are not destroyed by wind in anything like the same degree. The Cedar of Lebanon is beautiful in the "specimen" way, but it is at least equally beautiful massed in groups. In their own countries, in addition to being massed and grouped together, the soil is often stony and rocky, the growth is slower, and the trees take a firmer hold, whereas in our river valleys, where the Lebanon Cedar is often planted in an isolated way, the growth is softer and the resistance to wind less, and a more artistic and natural way of planting would lessen the accidents to which this noblest of evergreen trees is exposed.

Shelter and wind screens.

Few countries are so rich in the means of shelter as our own, owing to the evergreens that grow freely with us and thrive in seashore and wind-swept districts. Shelter may be near flower-beds and distant or wind-breaks, across the line of prevailing winds, and the north and east winds, and may be of Yew, Holly, Cedar of Lebanon (never Deodar), native Fir, a few other hardy Firs, and the Ilex.

Among the kinds of shelter, walls, thickly clad with climbers, evergreens and others, are often the best for close garden work, because they do not rob the ground, as almost any evergreen tree will; and in doing their work, they themselves may bear many of

our most beautiful flowers. Half-hardy evergreens, like the common Cherry Laurel and Portugal Laurel, should never be planted to shelter the garden, because they may get cut down in hard winters. Happily, even in the most exposed places, a good many hardy flowers may be grown with success, such as Carnations, Pinks, and many rock plants which lie close to the ground, and are therefore little exposed to wind, and thrive in exposed places where soil and cultivation are not against them.

Planting near the sea.

Some are doubtful of planting near the sea, considering the bleak look of things and the cutting winds. Yet even in places where the few trees that are planted are cut sharp off by the sea wind above the walls, as in Anglesea, we may see how soon good planting will get over difficulties that seem insurmountable. By the use near the sea of small-leaved trees like the Tamarisks, Sea Buckthorn, and small Willows, we very soon get a bit of shelter, and by backing these with the close-growing conifers like our common Juniper and some of the sea-loving Pines, like Pinaster, and in mild southern and western districts the Californian Cypress and the Monterey Pine, we soon get shelter and companionship for our trees, and fifty yards away we may soon walk in woods as stately as in any part of the country. Having got our shelter in this way the growth of the hardy Pines of the northern world seems as easy by the sea as anywhere; indeed, more so, because if there is any one place where the rather tender Pines are grown well it is near the sea in places around our coast, where if the soil is good, one has not to be so careful about the hardiness of trees we select as we have to be in inland places.

The Ilex.

The Evergreen Oak takes a lead among the trees near the sea, and it ought to be largely used; but as it is not very easily transplanted from nursery-bought plants, it is just as well to raise it on the place and plant it young. Seed may be scattered with some advantage in places we wish it to grow in, as it grows freely from seed.

The Evergreen Oak withstood the great gales of 1897 in the south and west of England better than any other tree. At Killerton and Knightshayes, and many other places where the destruction was greatest, the Evergreen Oak was not among the many victims. It is a precious tree for the south and west and all seashore districts, and should never be forgotten among the crowd of novelties. As with so many trees, it suffers from indiscriminate planting with other and sometimes coarser things, and is rarely grouped in any effective way, although here and there, as at Ham House, at Killerton, and at St Ann's, we may see the effect of holding this tree together.

The Pines.

In addition to the common evergreen trees of Europe, Scotch Fir, Spruce and Silver Firs, we have the noble Corsican Pine, which, from its habitat in Calabria and in Corsica, can have no objection to the sea. The Pines of the Pacific coast, too, are well used to its influences, and we see in our country good results from planting them near the sea, as, for example, Menzies' Spruce at Hunstanton, the Monterey Pine at Bicton, the Redwood in many places near the sea. One good result of planting in such places is that we may use so many evergreen trees, from the Holly to the Cedar, and so get a certain amount of warmth as well as shelter.

Though our country generally is not perhaps fitted for the growth of the Cork Oak, a fine evergreen tree, it is here and there seen in southern and sheltered parts on warm soils, as in certain parts of Devonshire and on the warm side of the Sussex Downs, even in good condition. Of this fact we have an example in the Cork Oaks at Goodwood, all that could be desired in health and beauty. This Oak naturally inhabits the southern parts of Europe and the northern parts of Africa, and it is interesting to see that it can attain the size of a stately tree in our own country in some favoured places, but the Evergreen Oak for our islands is the Ilex and its various forms.

Some Genera of Evergreen Trees and Shrubs Hardy in the British Isles.[1]

Abies	*Cistus	Euonymus	Magnolia	Rhododendron
Aralia	Cotoneaster	*Fabiana	Myrica	Rosmarinus
Araucaria	Cratœgus	Garrya	Olearia	Ruscus
*Arbutus	Cryptomeria	Gaultheria	Osmanthus	Sequoia
Arundinaria	Cupressus	Hedera	Pernettya	Skimmia
Aucuba	Daphne	Ilex	Phillyrea	Smilax
Azara	Daphniphyllum	Juniperus	Phlomis	Taxus
Bambusa	*Desfontainea	Kalmia	Phyllostachys	Thuja
*Benthamia	Diplopappus	Laurus	Pieris	Thujopsis
Berberis	Elœagnus	Ledum	Pinus	Ulex
Buxus	*Embothrium	Leiophyllum	Quercus	Veronica
Camellia	Ephedra	Leucothoe	Raphiolepis	Viburnum
Cedrus	Erica	Libocedrus	Retinospora	Vinca
Chamœrops	Escallonia	Ligustrum	Rhamnus	Yucca
Choisya				

[1] Some of those marked * are hardy only in seashore districts or warm soils, and in some genera named few species are evergreen.

CHAPTER XXXII.

"Vous travaillez pour ainsi dire à côté de Dieu, vous n'êtes que les collaborateurs de la loi divine de la végétation. Dieu, dans ses œuvres immuable, ne se prête pas à nos chimères; la nature n'a pas de complaisance pour nos faux systèmes. Elle est souveraine, absolue comme son Auteur. Elle résiste à nos tentatives folles; elle déjoue, et quelquefois rudement, nos illusions. Elle nous seconde, elle nous aide, elle nous récompense, si nous touchons juste et si nous travaillons dans son sens vrai; mais si nous nous trompons, si nous voulons la violenter, la contraindre, la fausser, elle nous donne à l'instant même des dementis éclatants en faits par la stérilité, par le dépérissement, par la mort de tout ce que nous avons voulu créer en dépit d'elle et à l'inverse de ses lois."—LAMARTINE, DISCOURS AUX JARDINIERS.

CLIPPING EVERGREEN AND OTHER TREES.

THE Yew in its natural form is the most beautiful evergreen of our western world—finer than the Cedar in its feathery branching, and more beautiful than any Cedar in the colour of its stem. In our own day we see trees of the same great order as the Yew gathered from a thousand hills—from British Columbia, through North America and Europe to the Atlas Mountains, and not one of them has yet proved to be so beautiful as our native Yew when unclipped root or branch. But in gardens the quest for the exotic is so active that few give a fair chance to the Yew as a tree, while in graveyards, where it is so often seen in a very old state, the cutting of the roots hurts the growth, though there are Yews in our churchyards that have seen a thousand winters. It is not my own idea only that I urge here, but that of all who have ever thought of the beauty of trees, foremost among whom we must place artists who have the happiness of always drawing natural forms. Let any one stand near the Cedar-like Yews by the Pilgrim's Way on the North Downs, and, comparing them with trees cut into fantastic shapes, consider what the difference means to the artist who seeks beauty of tree form!

What right have we to deform things so lovely in form? No cramming of Chinese feet into impossible shoes is half so foolish

as the wilful and brutal distortion of the beautiful forms of trees. The cost of this mutilation alone is one reason against it, as we see where miles of trees cut into walls have to be clipped, as at Versailles and Schönbrunn. This shearing is a mere "survival" of the day when we had very few trees, and they were clipped to fit the crude notion of "garden design" of the day. The fact that men when they had few trees made them into walls to make them serve their ways of "design" is no reason why we, rich in the trees of all the hills of the north, should go on mutilating them.

While it may be right to clip a tree to form a dividing-line or hedge, it is never so to clip trees grown for their own sakes, as by shaving such we only get ugly, unnatural forms.

Unnatural forms. Men who trim with shears or knife so fine a *tree* as the Holly are dead to beauty of form and cannot surely have seen how fine in form old Holly trees are. To give us such ugly forms in gardens is to show one's self callous to beauty of tree form, and to prove that one cannot even see ugliness. The Cherry Laurel in its natural shape in the woods is often fine in form; but it is planted everywhere in gardens without thought of its fitness for each place, and as it grows apace, the shears are called in, and its shoots are cut into ugly banks and formless masses. There is no place in which it is clipped for which we could not get shrubs of the desired size that would not need the shears.

Now and then we see attempts on the part of those with more knowledge of some half-mechanical grade of decorative "design" than of beautiful form to galvanise the corpse of the topiary art. Such an idea would not occur to any one knowing the many beautiful things now within our reach, nor to any landscape-painter who studies beautiful forms of earth or trees or flowers, nor to any lover of Nature in tree or flower. Sometimes these puerilities are set into book form. For one author there is no art in gardening, but cutting a tree into the shape of a cocked hat is "art," and he says:—

> I have no more scruple in using the scissors upon tree or shrub, where trimness is desirable, than I have in mowing the turf of the lawn that once represented a virgin world . . . and in the formal part of the garden my Yews should take the shape of pyramids, or peacocks, or cocked hats, or ramping lions in Lincoln green, or any other conceit I had a mind to, which vegetable sculpture can take.

After reading this I thought of some of the true "vegetable sculpture" that I had seen; Reed and Lily, models in stem and leaf; the Grey Willows of Britain as lovely against our British skies as Olives are in the south; many-columned Oak groves set in seas of Primroses, Cuckoo flowers, and Violets; Silver

"Vegetable sculpture."

Birch woods of Northern Europe beyond all grace possible in stone ; the eternal garland of beauty that one kind of Palm waves for hundreds of miles throughout the land of Egypt—a vein of summer in a lifeless world ; the noble Pine woods of California and Oregon, like fleets of colossal masts on mountain waves—these and many other lovely forms in garden and wood, and then wondered that any one could be so blind to the beauty of the natural forms of plants and trees as to write as this author does.

From the days of the Greeks to our own time, the delight of all great artists has been to get as near this divine beauty as what they work in permits. But this deplorable *vegetable sculptor's* delight is in distorting beautiful forms ; and this in the one art in which we have the happiness of possessing the living things themselves, and not merely representations of them. The old people from whom he takes his ideas were not so foolish, as when the Yew was used as a hedge or was put at a garden gate it was necessary to clip it to keep it in bounds. Apart from the ugliness of the cocked-hat tree, or other pantomimic trees the want of life and change in a garden made up of such trees should open the eyes of any one to its drawbacks, as in it there is none of the joy of spring, or summer's crown of flowers, or winter's rest.

Abuse of Yew hedges.

In old days, whether in a manor house or castle garden, the use of Yew hedges had some clear motive of shelter or division, or clothing against massive walls as at Berkeley, or at a cottage door as a living shelter. But when we use Yew hedges from the mere desire for them, and without much thought of the ground or other reasons, we may find ourselves in trouble. At a place where Roses were earnestly sought, the Rose borders were backed up close by Yew hedges ; the Yews were not very troublesome the first year or two, but, as they grew, they became merciless robbers. There are many ways of growing Roses, but it would be difficult to invent any worse way than this, which leaves the gardener always "between the devil and the deep sea," trying to keep back the hungry Yew roots all the while, it being quite easy to secure a background which, instead of eating up the Roses, would support and shelter them beautifully, walls, Oak palings, other trellises, or espaliers of bushy climbers, like Honeysuckle and Clematis.

Another bad way is to place lines of Yew hedges so close together that the sun can hardly sweeten the ground between them, this being generally the result of carrying out some book plan, without thought of the ground or its use. More stupid still is cutting up level lawns with Yew hedges across them, or sometimes projected into them a little way, with flower-beds in between, within a couple of feet of the

all-devouring Yew, all this very costly Yew planting working for ugliness, and against the health, and even life, of all the flowers near.

It is not only the needs of our own greatly increased garden flora —new races of plants never known to the old people, such as our Tea Roses and the rich collections of shrubs from Japan and other countries, that will not bear mutilation or robbing at the root—that should make us pause, as, even in what remains to us of old flower gardens on ancient tapestries and pictures, we may see some evidence that the lady had room in her flower garden to look around and work among her flowers, unencumbered by a maze of robbing hedges. Some, perhaps, of these close lines of Yews, set with such little thought, owe their origin to the maze idea; but the maze was for a wholly different end, and in it we have only to grow its trees and the paths are free for the roots. In the Rose and flower garden the cost and care to get an artistic and beautiful result are too heavy to have them eaten up before our eyes by the hungriest of tree roots.

Clipped evergreen shrubs.

A gardener with shears in his hand is generally doing fool's work, but there is much difference between his clipping old or sheltering lines of Yews, or even the peacocks in Box, and the clipping which goes on in some gardens where beds are filled with small evergreen bushes instead of flowers. Some effect may be obtained in a way, but the bushes usually get far too thick, and then the shears are used to keep them in bounds, and what ought to be graceful groups of flowers or shrubs of good form becomes flat, hard, and ugly. The clipping may have been designed at first, but oftener it is done to repress overgrowth. A more stupid way of filling the beds of a flower garden could hardly be imagined, because we lose all the grace and form of the shrubs, and also the chance of seeing flowers growing among them. It is one of the prettiest phases of flower gardening when Lilies, Gladioli, and other graceful plants spring from groups of choice evergreens. The end of all this laborious mutilation is to cause disease and overcrowding, and the best thing is to clear the deformed things away and plant in more natural ways. If we want flower-beds, let us have them; by doing so we can have varied life for more than half the year. If we want beds of choice evergreens we can have them without destroying their forms by the shears.

Disfigurement of forest trees.

Recently magazines and illustrated journals, in the great chase after subjects, have dealt with the clipped gardens of England, and some of the most ridiculous work ever perpetrated in this way has been chosen for illustration. Of English counties, Derbyshire is the most notorious for examples of disfigured trees. The Dutch, who

painted like nature, and built like sane men, left their plantations to the shears, but they always cut to lines or had some kind of plan, judging from their old engraved books. British clipping has one phase which has no relation to any plan, and in so far exceeds in extravagance the methods of the Dutch, Austrian, and French, and that is the clipping single, and often forest, trees into the shape of green bolsters. A false idea runs through all growers of trees of the Pine tribe, the most frequent victims of the practice, that these trees should be kept in a conical shape, the truth being that all the Pine trees in the world in their state of highest beauty lose their lower branches, and show the beauty of their stem and form when growing in their natural way. With a few exceptions, it is the way of these trees to shed their lower branches as other trees shed their leaves. In countries where Pines often stand alone, as on the foothills of California, I have seen them with 100 feet or more of clean stem.

We are told that Elvaston is not remarkable for natural beauty, and that the grounds there are so flat that landscape-gardeners, in despair of any other planting, are compelled to have recourse to topiary work; that "even that man of fame, 'Capability' Brown, seems to have shrunk from the work of laying out the grounds. Whereupon the earl demanded his reason, and Brown replied, 'Because the place is so flat,' &c."

Now level ground has a great deal in it that is favourable to artistic ways of planting. With such ground we may more easily secure breadth, simplicity, and dignity, get dividing lines in the easiest way, richer soil and finer and more stately growth and nobler shelter. Many of the most beautiful gardens of Europe are on level ground, as Laxenberg in Vienna, the English garden in Munich, not to speak of many in our own river valleys and in counties like Lincolnshire. What would be said of planting in all the flat countries of Northern Europe if the assertion were true that we cannot make level ground beautiful by planting in natural ways, to say nothing of the absurdity of assuming that the only way out of the difficulty is in the stupid disfigurement of trees?

Loss of form.

First of all is the loss of tree form—a wonderful and beautiful gift, so beautiful, indeed, that the marvel is that we should have to allude to it at all, as in nearly every parish in England one has only to walk one hundred yards or so to come face to face with fine examples of good tree form. There is more strength and beauty of line in many an Ash tree by a farmhouse yard than in all the clipped trees in Britain. Some protest against the cropping and docking of animals' ears and tails, but, when the worst is done in that way, the dog or the horse remains in full beauty of form in all essential parts, but if

we clip a noble tree, which in natural conditions is a lesson in lovely form in all its parts, we reduce it at once to a shapeless absurdity.

Light and shade.

The second great loss is that of light and shade, which are very important elements of beauty. These are entirely neutralised by shaving trees to a level surface, whether the trees take the form of a line, or we clip them singly, as in the British phase of tree clipping. If we see old examples of the natural Yew, a forest tree, and the commonest victim of the shears among evergreen forest trees, and if we look at them in almost any light, we may soon see how much we lose by destroying light and shade, as the play of these enhances the force and beauty of all the rest.

Colour.

The third objection is the loss of refined colour. In gardens we are so much concerned with garish colour that we often fail to consider the more delicate colours of nature, and such fine tone as we see in a grove of old Yews, bronzed by the winter, or in Ilex with the beautiful silver of the leaf, or a grove of coral-bearing Hollies. All the favourite trees used for clipping are far more beautiful in colour in a natural state; the loss of the stem colour alone is a great one, as we may see wherever old Yews show their stems.

Motion.

In the movement of these trees stirred by the wind, and the gentle sighing of their branches, we have some most welcome aspects of tree life. In groves of Ilex, as at Ham House, and masses of the same tree, as at St Ann's, the effect of the motion of the branches is to many a beautiful one. This movement is also of great beauty in groves of old Yew trees, and is seen in every Cedar and Pine that pillars the hills. The voice of the wind in these trees is one of the most grateful sounds in nature, and has often inspired the poet.

> "I see the branches downward bent,
> Like keys of some great instrument."

And even when the storm is past we hear delicate music in the free Pine tips.

> "What noise is this? what low and solemn tone,
> Which, though all wings of all the winds seem furled,
> Nor even the zephyr's fairy flute is blown,
> Makes thus for ever its mysterious moan
> From out the whispering Pine-tops' shadowy world?
>
> Ah, can it be the antique tales are true?
> Doth some lone Dryad haunt the breezeless air,
> Fronting yon bright immitigable blue,
> And wildly breathing all her wild soul through
> That strange unearthly music of despair?

Or, can it be that ages since, storm-tossed,
And driven far inland from the roaring lea,
Some baffled ocean spirit, worn and lost,
Here, through dry summer's dearth and winter's frost,
Yearns for the sharp sweet kisses of the sea?"

The fifth objection is that the constant mutilation of trees leads to disease not unfrequently, as may be seen at Versailles. In the Derbyshire examples the stems of dead Pines are shown in the pictures! It is simply an end one might expect from the annual mutilation of a forest tree, which the Yew certainly is, as we see it among the Cedars on the mountains of North Africa, as well as in our own country and in Western Europe. Other trees of the same great Pine order are yet more impatient of the shears, and some of them, like the Cedar, escape solely because of their dignity. However, we distort the Yew, which is in nature sometimes as fine as a Cedar.

Death and disease.

The maze is an inheritance from a past time, but not a precious one, being one of the notions about gardening which arose when people had very little idea of the infinite beauty of the garden flora as we now know it. Some people may be wealthy enough to show us all the beauty of a garden and at the same time such ugly frivolities as this, but they must be few. The maze is not pretty as part of a home landscape or garden, and should be left for the most part to places of the public tea-garden kind. One of its drawbacks is the death and distortion of the evergreens that go to form its close lines, owing to the frequent clipping; if clipping be neglected the end is still worse, and the whole thing is soon ready for the fire.

The maze.

CHAPTER XXXIII.

LAWNS AND PLAYGROUNDS.

THE lawn is the heart of the true British garden, and of all forms of garden the freest and, may be, the most varied and charming, adapted as it is to all sorts of areas from that around the smallest house. It is above all things the English form of garden made best in the rich level valley land, and, with the least amount of trouble and labour to make or keep it, certainly gives the best result in effect. The terrace garden we have seen, in its origin and best meaning, arises from wholly different sort of ground from that on which we make a lawn. If the Italians and others who built on hills to avoid malaria had had healthy and level ground they would have been very glad of it, and thought it beautiful. With the lawn there is little or no trouble in securing fine background effects, variety, pretty dividing lines, recesses for any favourites we may have in the way of flowers, freedom, relief, air, and breadth. There is room on the lawn for every flower and tree, from the Cedar, and the group of fruit trees planted for the beauty of their flowers and fruit, down to rich beds of Lilies.

One of the most foolish dogmas ever laid down about a garden is that made in a recent book by an architect, in which we are told emphatically that there is no such thing as a garden to be made except within four walls. Many of the most beautiful gardens in the British Isles are without any other aid than a background of trees and evergreens, with no trace of walls, which are absolutely needless in many situations to get the most artistic results in a garden. And lovely gardens may be made around lawns without marring the breadth and airiness which is the charm of a lawn, or in the least interfering with the use of its open parts as a playground.

Where there is space enough there are reasons in country places for cutting off by a hedge a playground from the garden or pleasure ground, as is done at Madresfield and Campsey Ash and many of the older gardens: and what is used generally is the Yew or Holly, but clipped hedges give little shade and no flowers. Now, in the like position, if we adopt the pergola, we get shade, and many graceful flowers. Clematis, tall Roses, Wistaria, and almost every

Climber-covered alleys.

beautiful climber could be grown thereon, some better than on walls, because we can allow for more *abandon* than on walls, and it is not at all so easy to crucify Vine or climber on a pergola. We can have evergreens, too, if we wish, with garlands of handsome Ivies among them, and players might rest in the shade and lookers on sit there to see the play. Various bold openings should be made on the play lawn side, and the whole so arranged as to be a sort of living cloister. Well done, the structure might be, apart from its shade and coolness and use as a dividing line, a garden of a very graceful kind, while the recent hot seasons lead one to think that the Italian way of putting a roof of Vine leaves between one's self and the sun is worth carrying out in our own country.

Pergolas.

Pergolas have various uses in covering paths which are too much exposed to the sun, and are a great aid in the garden, and there is no better way of growing beautiful climbing plants than a green covered way, whether supported by Oak posts, or brick or stone pillars as in Italy. The covered ways made in England are often too narrow. In forming all such things a certain amount of freedom is essential; and we cannot enjoy the air in the usual narrow covered way, which, apart from its own error as to size, is also soon narrowed by growth. Where Oak is not distinctly preferred, 14 ins. brick pillars are best, and the plants take to them very soon. Common brown or rough stock bricks are far better for this use than showy red bricks. In stone districts stone would do better, and it needs no fine dressing or designing after any pattern. It is better in fact done in the free way the Italians do it; but then in Italy every man is a mason, or knows what to do with stone, and also the stone there comes out in long posts or flakes, which serve as posts. This is also the case in the north of England, where beautiful posts of the green stone may be seen in use on the farms.

The beautiful climbing shrubs and other plants that would find a good congenial home on such a pergola are a good reason for its use. Among them various graceful forms of our Grape Vine, as well as the Japanese and American wild Vines, a group which now includes the Virginian creepers of our gardens, which are also useful, but not so good as the true Vines; the lovely Wistaria, and not only the old Chinese kind, the best of all, but the beautiful Japanese long-racemed kind (*W. multijuga*); and various others too, though we think none come near to these in beauty; the brilliant Flame Nasturtium in cool districts; the Green Briar (Smilax) of America and also the South of Europe, for warm soils; handsome double and white-stemmed Brambles; wild and single Roses; Box Thorn, with its brilliant showers of berries; European, American and

Japanese Honeysuckles; Jasmines; over fifty kinds of Ivy, the noblest of northern and evergreen climbers; evergreen Thorn, with its bright berries; Cotoneasters of graceful habit; Clematises, especially the graceful wild kinds of America, Europe, and North Africa. In mild districts particularly, the winter blooming Clematis of North Africa and the Mediterranean Islands, which flowers in winter or early spring, would be very pretty and give light shade. The showy trumpet flowers (*Bignonia*), quite hardy in southern and midland counties; and the Dutchman's pipe (*Aristolochia*), with its large leaves, would also be useful. The fine-leaved Lardizabala of Chili, the brilliant coral Barberry of the same country (*Berberidopsis*); the graceful, if not showy silk Vine (*Periploca*) of Southern Europe; the Chinese Akebia, the use of the rarer climbers depending much on the climate, elevation, soil, and nearness to the sea.

The plashed alley.

An alternative to the Yew hedge and the covered way is the plashed alley, but in some Elizabethan gardens it was often planted with trees of too vigorous growth, such as the Lime, which led to excessive mutilation and eventual distortion of the tree. Now, with our present great variety of trees, some of them very graceful and light in foliage, it is by no means necessary to resort to such ugly mutilation; and it would be easy, as an alternative to the pergola, the clipped hedge or the plashed alley, to have a shaded walk of medium-sized or low trees only. These might even be fruit trees; but the best would be such elegant-leaved trees as the Acacias, which preserve their leaves for a long time in summer. One drawback of the Lime, in addition to its excessive vigour, is the fact that it sheds its leaves very early in the autumn, and, indeed, we have often seen the leaves tumble off in St James's Park at the end of July, and in Paris also. It is most unpleasant to have in an alley a tree which is liable to such an early loss of its leaves. The common Lime is a tree of the mountains and cool hills of Europe, and it cannot endure great heats and hot autumns; whereas some of the trees of North America and other countries are quite fresh in the hottest days. Among these none is better than the Acacia, of which, in France especially, a number of elegant varieties have been raised, as hardy as the parent species which charmed William Cobbett, but more graceful in foliage. Among the best of these is the Mimosa-leaved Acacia, an elegant tree, which gives us a pleasantly shaded walk, and yet is not likely ever to become too coarse in habit.

Fine turf is essential in and near the house and garden—turf wholly apart from the open park or playground. Flower-beds are often set in

turf, or there are small grassy spaces near the house or the garden, on the good effect of which depends very much the beauty of the home landscape, as coming so much into the foreground of what should be pictures. One reason why we should take care to get the best turf which the conditions of soil or climate allow is that no other country but ours can have such good turf. In many countries, even in Europe, they cannot have it at all, but grass seed has to be sown every year to get some semblance of turf. Where, however, our natural advantages are so great, our care should be to get the full benefit of them; and though in many places the turf, through the goodness of the soil, is all that could be desired even in Britain, in others a very poor turf is often seen, and much effort is often given in vain attempts to get a turf worthy of a flower garden.

Fine turf.

Many people think that any rough preparation will secure them a good sward, and merely trench and turf the ground; even experienced ground workmen fail to get a fine turf for the flower garden, though they may lay turf well enough for a cricket ground. Others think that turf will come of itself, but are often rudely disappointed; and therefore some instructions as to the best way of laying down turf, where the work has to be done from the beginning, and also for repairing it when out of order, may be useful to some readers. The following is written by Mr James Burnham, who has made for me some of the most beautiful garden lawns I have seen, some of them laid in hot spring weather.

"Should the spot chosen be on heavy soil, such as clay, take the levels and fix them 16 feet apart around the outside of the piece intended for a lawn. Take some levels across the piece, then take 12 inches of earth out below the levels. Should any of these 12 inches contain good soil, wheel that on to the outside of the piece, removing all the clay to a place near and burning it into ballast, using slack coal. Find the natural fall of the ground, and place pegs 16 feet apart in lines from top to bottom the way it falls, then dig out the soil in line of pegs with a draining tool, 12 inches deep at top end, bottom end 18 inches deep. This will give a fall of 6 inches. Then lay in 2-inch drain pipes, with a 3-inch pipe at the bottom end for a main to take the water that drains from the sub-soil. See that this main is taken to some outlet. Cover the pipes with 3 inches of burnt ballast, and spread 3 inches of burnt ballast all over the piece of ground. Dig the ground over 12 inches deep, at the same time mixing the 3 inches of burnt ballast with the clay, taking care not

Formation of good turf.

to disturb the pipes or dig below them. After treading all over firmly, place on the surface 2 inches of burnt ballast, filling to the level with loam mixed with the good soil you have laid on one side from the surface. If you have no good soil, fill up with loam mixed with coarse gravel, brick rubbish, and burnt ballast. Tread all over again as before, making it level with a spade, pressing in any lump or stone that appears level with the ground. No rake should be used. You have now 2 feet of trenched earth. Do not dig down deeper in one place than another. A stick cut 2 feet long by the worker's side is the best. He can, with the stick, test his depth from time to time.

"In laying the turf keep the joints of each piece half-an-inch apart. When it is all laid down pat it gently all over with a turf-beater. It is better to take up the turf that is a little higher than the rest and take out a little of the soil than to beat it down to the level. Then spread some burnt ballast, ashes from the burnt refuse of the garden, and the top 2 inches of soil from the wood sifted through a half-inch mesh sieve, mixed well together, all over the grass. Move it about until all the joints in the turf are level. Wait for rain, then go over the lawn and take out all weeds. Give another dressing of the soil as before, adding to this a little road grit and old mortar. If no old mortar is available, slaked lime will answer. Move this about until all is level again. In the month of March or the first week in April, if the weather is fine, sow all over the lawn some of the best lawn grass seed. Get some fine Thorn bushes and lace them together in the shape of a fan heavy enough for two men to drag about the lawn in various ways. Roll with a light roller, and keep off the lawn until the grass has grown 3 inches, then cut it with a scythe. Roll with a light roller the first season, and when mowing with the machine see that the knives are not set too close to the ground.

Laying the turf.

"Should the ground selected for turf not contain clay, so much the better. Dig holes here and there 2 feet deep in the winter months. If no water lies at the bottom of the holes, this shows it will not want artificial draining; if there is water drain as on heavy soil. In trenching the ground, if the sub-soil be bad, take 3 inches of this away, filling up to the level with good soil, to which have been added half-inch crushed bones in the proportion of four tons to the acre, fire brick rubbish and burnt ballast in the same proportions as for the heavy soil. Turf and treat as on heavy soil. If you have a good grass field, take the turf for your lawn, also top spit away, replace with rough soil, and

place 3 inches of the loam that has been dug out upon the rough soil you have put in, then sow, bush harrow, and lightly roll."

Treatment of old lawns.

"Weeds, moss, and bare places on lawns show that they are worn out. To remedy this, take off the turf in rolls 3 feet long 1 foot wide, and 1 inch thick. If the turf cannot be rolled, take 6 inches of the surface away, then trench 2 feet deep, keeping the good soil on the top as you proceed. Tread firmly all over and fill up to the level with good soil; mix with the loam, burnt ballast, old brick rubbish, half-inch crushed bones, and road sidings or sweepings. Then turf and treat as in the case of new lawns. On old lawns there are very often handsome deciduous trees too close to which it would be dangerous to trench. To get grass to grow under these, take away 2 inches of the exhausted soil, replace with good, and sow thereon grass seed thickly. Rake the seed in gently, roll it lightly, and water when necessary. This may be repeated in the same way as often as the soil under the trees becomes bare.

"In some cases where turf is scarce, a roll of turf 3 feet long and 1 foot wide may be taken and cut in half lengthways. With this form the outlines of the beds, which have been staked out previously, beat down to the level required, and bring up the intervening spaces to the level of the turf with good soil. Make this firm, rake it level, and on this sow some good grass seed. Bush harrow it over, roll lightly, and protect from birds where these are troublesome. Cut the grass when 6 inches high with a scythe, and keep it well watered during the summer if the weather is dry. In this way a beautiful lawn may be had at little expense as compared with turfing it completely over."

Lawns on peaty and sandy soil.

"In some parts of Hampshire and Surrey, where peat and sand abound, seeds are by far the best to use to form a good turf. Remove all peat from the site you wish for a lawn, pile it on the outside of the work and cast plenty of water upon it. Then take out 2 or 3 inches of the dark sand that lies under the peat, and cast this also over the pile of peat. Take out 12 inches of the sand, dig all over 12 inches deep and tread it firmly. Get all the road scrapings and road trimmings to be had with a little clay and stiff loam, and cast upon the peat pile. Having got together the quantity you think will fill up to your level, cut up small the peat you have in the pile and mix all well together with this, fill up to the level, tread firmly all over, then give everywhere a good coating of cow manure, turned 3 inches under the surface,

and tread firmly all over. In the month of March sow thickly. Do not let the surface get dry the first summer, and cut the grass when 6 inches high with a scythe.

"Attention should be paid to keeping all lawns free from weeds. Dress lawns once a year with one bushel of salt mixed with fourteen bushels of wood ashes not too much burnt, using for this purpose refuse, underwood, waste faggots, old Laurels or other condemned shrubs. When you see the wood is consumed spread the ashes abroad and cover them with good soil. Break the charred wood small, mix all well together, do not sift, spread upon the lawn, and roll it in."

Stone bench (Dropmore).

CHAPTER XXXIV.

GARDEN HOUSES, BRIDGES, GATES, FENCES, AND ROADS.

ISOLATED building in a garden is difficult to do with any good result. At one period the building of temples was very common in pleasure gardens, and many of them are still to be seen. It is best, when these are of good form and structure, to keep them with care and make some simple use of them, by removing at once all suggestion of the grotto and having simple Oak benches or other good seats. The interior also should be made simple in colour and free from covert for wood-lice or earwigs. It is in connection with the house, or part of its lower storeys, that garden shelters, loggias, and the like may be best made; of this we see examples at North Mymms and Bramshill, and where they give shade or a "garden room" as part of the house they are a real gain.

Few things about country houses and gardens are worse in effect and construction than the so-called "rustic work." It is complex and ugly, its merit being that it rots away in a few years. It is probably at its worst in garden chairs, summer-houses, and rustic bridges. An

Bridges.

important rule for bridges is never to make them where they are not really needed, though the opposite course is followed almost in every place of any size where there is water. On rustic bridges over streams, natural or otherwise, there is much wasted labour.

Some of the worst work ever done in gardens has been in the construction of needless bridges, often over wretched duck-ponds of small extent. Even people who have some knowledge of country life, and who ought to possess taste, come to grief over bridge building, and sheets of water are disfigured by bridges ugly in form and material. For the most frivolous reasons these ugly things are constructed, though often by going ten yards further one could have crept round the head of the pond by a path.

Earth-bank bridges.

But there are many cases where some kind of bridge is necessary in pleasure grounds or woodlands. The difficulty of the woodwork bridge is that it begins to rot as soon as it is put up, that rot and decay are all we get out of it, and very often such bridges fall into such a dangerous state before we have time to repair them, that animals may get into danger.

A much better way is the earth-bank, with a drain pipe through, and this suffices where there is a slight flow of water, and also to cross gorges. We can find the earth to make it on the spot, and by punning, and in the case of larger work of this kind, carting over it, we can get it to settle down in one winter to the level we want it, and soon have a permanent way across. Such banks will support any weight, and are as free from decay as the best stone bridge. One of their best points is that the sides and approaches and slope of the earth-bank can be made pretty at once by planting with Honeysuckle, Broom, Sweet Brier, or any other hardy things. The materials being on the spot, it is needless to cart things a long way. By making a culvert of bricks, the earth-bank is equally good to cross constantly running streamlets. The drain should be large enough to carry any spate and let it pass. For a large drain crossing the road to house, the concrete (reinforced) tubes we get from Northampton are excellent.

The summer-house.

The summer-house is generally a failure and often a heap of decay. To make such a structure of wood that soon decays is labour wasted. It may be possible, by using the best woods and good Oak slabs, to make a summer-house which will be picturesque and enduring, but it is better to build it of stone or some lasting material.

One can make an enduring and charming summer-house out of

living trees. An old Yew or a group of old Yews, or a low-spreading Oak (there is a fine example of this kind of living summer-house at Shrubland), an old Beech or a group of evergreen Oaks will make a pleasant summer-house, and with a little care for effect, and by pruning away old and worn-out branches, so as to get air and room without injuring the beauty of the trees, it is easy to form cool tents for hot days.

Fences and dividing lines.

The iron fence destroys the beauty of half the country seats in England, and the evil is growing every day. There are various serious objections to iron fencing, but we will only deal here with its effect on the landscape. Any picture is out of the question with an iron fence in the foreground. Where an open fence is wanted, nothing is so fine in form and colour as a split Oak fence and rails made of heart of Oak with stout posts. A sawn wood fence is not so good. As Oak is so plentiful on many estates, good

Garden seat, Warley Place.

examples of split Oak post and rail fences should be more often seen. Oak palings are often used, and sometimes where a good live fence of Holly, Quick and wild Rose on a good bank would be far better; but Oak paling is often a precious aid in a garden as a dividing line where the colour of brick or other walls would be against their use, or where for various reasons walls would not do.

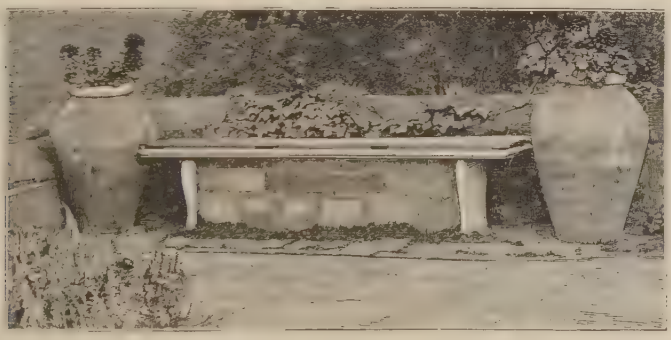
Sunk fences and retaining walls.

Sunk fences of stone or brick are often of the highest value in the pleasure ground, and sometimes near the flower garden, as they help us to avoid the hideous mechanical fences of our day, and are often the best way of keeping open views, especially if planted with a garland of creeping plants or wild roses above. They should be strongly if roughly built, without mortar, and they may be a home for beautiful plants. They should be made on a "batter" or slightly sloping back, the stones packed close together, *i.e.* without much earth, and layers of rock plants should be put

between them. Retaining walls could be made in this way, and where they permit of it may be made into beautiful alpine gardens. Apart from the sunk fence, there is often need for low retaining walls, especially in places of diversified surface. These walls also may be made the home of delightful plant beauty in the simplest way.

Garden seats.

It is rare to see a garden seat that is not an eyesore. Few make them well and simply in wood, and there is always decay to be considered. Of our own woods Oak is the best. Oak is best without paint and in the natural colour of the Oak wood. No seat is so good as one of good stone simply designed and strongly made, and in our country



Marble slab seat with lattice cover.

one objection to stone is met by the use of a mat or a light trellis of Bamboo or split laths of Oak held together by cross pieces and placed on top of the stone. Stone seats should always be set on stone supports bedded in concrete. A good Oak seat is one with strong stone supports, the top being a slab of Oak laid with two bars across its lower side to keep it in place. The top in this form being so easily removed, may be stowed away for the winter, as wooden seats should always be. Sometimes old tree stumps help to make useful seats, and the bole of the tree, if cut, makes a very good rustic seat. Where stone is plentiful, as in many hill and other parts, it is often easy to make useful seats out of blocks of stone in rocky places.

The covered way.

The covered way may be a charming thing in a garden and make a home for climbers, as well as a shady way, and also form a valuable screen. Shade is more essential in other countries than in ours, and the Italian covered way is often a very picturesque object. The best material to make the supports of is rough stone or brick.

On an enduring support like this the woodwork is more easily constructed afterwards. Simple rough stone posts may be had in certain quarries in the north of England, in the lake country, but in the absence of these it will be better to build columns of brick or stone than to trust to any wood. In all open-air work the enduring way is

The Great Reed, Westwick House Gardens, Norfolk.

true economy, and though we cannot all readily get the hard green stone gate posts stained with yellow Lichen of the farms about Keswick, or the everlasting granite fence posts that one sees in Italy, we should make a stand against work which has to be done over and over again. Of woods, Oak free of sap-wood makes the best supports. By using Oak with stone or brick supports, a covered

way may be made which will last for years without falling into decay, as is the case with this kind of work when done with woods and without lasting supports.

Living supports.

A pretty way of supporting plants and forming covered ways is to use certain trees of a light and graceful character for supporting climbers, just as the Italians often support their Vines on living trees kept within bounds. Such trees as the Weeping Aspen, Weeping Birch, and fruit trees of graceful, drooping forms, would do well, and would be worth having for their own sakes, while through the trees hardy climbers could freely run.

Boathouses.

Among the things which are least beautiful in many gardens and pleasure grounds is the boathouse. Our builders are not simple in their ways, and are seldom satisfied with any one good colour or material to make a house with, or even a boathouse, but every kind of ugly variegation is tried, so that harshness in effect is the usual result, where all should be simple and quiet in colour, as it is in boathouses on the Norfolk Broads made of reeds and rough posts. The simpler the better in all such work, using local material like Oak, which comes in so well for the posts, and reeds for the roof; but the simplest brickwork and brown tiles would be far better than the contrast of ugly colours which the modern builder both in France and England delights in. The place, too, should be carefully chosen and the building not conspicuous. To avoid the cost of railway carriage in the making of simple structures like boathouses, and also carting, which is such a costly matter in many districts, it is best to use materials of the estate or country. Little shelters for mowing machines, tools, and the like can be made with wood covered with Larch bark, as at Coolhurst, and a very pretty effect they have, besides being less troublesome to make than the heather or thatched roofs, especially in districts where the good thatcher is getting rare. And on the whole the best roof for any structure that has to last is of tiles of good colour: tiles made and tested in the locality being often the best.

Shingle roof.

I tried this on boathouse and summer-house with disastrous result, much cost and no last! So I had to go to the stone roof done by the Colly Weston men.

Ill-made roads.

These are often a cause of great expense and discomfort. In up and down country they need more care than level land, but in all cases they deserve thought if to last. The drive here was planned and made as well as we knew, but on one field above it a heavy rain

broke through and swept off much of the surface, and several like accidents made us think more of the roads. It is best to have no roads more than are really needed for use. Give them a good stone base, and drain so that heaviest spates may get away harmless.

Vine-shaded bower.

CHAPTER XXXV.

THE ORCHARD BEAUTIFUL.

THE spirit of beauty was at the birth of the trees that give us the hardy fruits of the northern world — Crab, wild Plum, Pear, and Cherry—yielding back for us in their bloom the delicate colours of the clouds, and lovelier far in their flowers than Fig or Vine of the south. The old way of having an orchard near the house was a good one. Planted for use, it was precious for its beauty, and not only when the spring winds bore the breath of the blossoms of Cherry, Plum, Apple, and Pear, as there were the fruit odours, too, and the early Daffodils and Snowdrops, and overhead the lovely trees that bear our orchard fruits—Apples, Pears, Cherries, Plums, Medlars, Damsons, Bullaces, and Quinces. To make pictures to last round the year, I should ask for many of these orchard trees on a few acres of ground, none the worse if too hilly for the plough; a belt of Hollies, Yew, and Fir, on the cold sides to comfort trees and men; with careless garlands of Honeysuckle, Rose, and fragrant Clematis among them here and there, and in the fence bank plenty of Sweet Brier and Hawthorn. If we see fine effects where orchards are poorly planted with one kind of tree, as the Apple (in many country places in our islands there are no orchards worthy the name), what might not be looked for of an orchard in which the beauty of all our hardy fruit trees would be visible? If we consider the number of distinct kinds of fruit trees and the many varieties of each, we may get some idea of the pictures one might have in an orchard, beginning with the bloom of the Bullaces in the fence. The various Plums and Damsons are beautiful in bloom, as in the Thames valley and about Evesham. The Apple varies much in bloom, as may be seen in Kentish and Normandy orchards, where the flowers of some are of extraordinary beauty. The Pear, less showy in colour, the Medlar, so beautiful in flower and in foliage, and the Quince, so pretty in bloom in Tulip time, must not be forgotten. The Cherry is often a beautiful tree in its cultivated as well as wild forms, and the Cherry

orchards in parts of Kent, as near Sittingbourne, are pictures when in bloom. There is no better work in a country place than choosing a piece of good ground to form an orchard; and a dozen acres are not too much in a country place where there is land to spare.

Some may be deterred by the fear that their soil is too poor, and planting is more successful on the fruit tree soils of Devon, Hereford, and Kent than in some other districts; but the difference in soils is no reason why some counties and districts should be bare of orchards. In many the soil is as good as need be, and indeed, in the country south of London, where much of the land is taken up with orchards, we may see the trees suffering more from drought in dry years than they do on the sandstone soils of Cheshire or in Ireland and Scotland, where there is a heavier rainfall. Few of our orchard trees require a special soil, and where chalky or warm soil occurs, the best way is to keep to the kinds of fruit it favours most. But though the orchard beautiful must be of trees in all their natural vigour, and of forms lovely in winter as in spring and summer, the trees must not be neglected, allowed to perish from drought, or become decayed from bug, scale or other pests, and it should be the care of those who enjoy their beauty to protect them from all such dangers. The idea that certain counties only are suited for fruit growing is erroneous, and need not deter us from planting orchards of the hardier trees and of good local kinds. Much of Ireland is as bare of orchards as the back of a stranded whale, but who could say this was the fault of the country?

Poor soil should not hinder.

Owing to the use of dwarfing stocks, fruit gardens and orchards are now beginning to show shapes of trees that are poor compared with the tall orchard tree. However much these dwarf and pinched shapes may appeal to the gardener in his own domain, in the orchard beautiful they have no place. For the natural form of all our fruit trees is good indeed, winter or summer. We know what the effect in flower-time is in the orchard pictures of such painters as Mark Fisher and Alfred Parsons, if we have not taken the trouble to see the finer pictures of the orchard themselves, seen best, perhaps, on dark and wet days in flower-time. Lastly, the effect of finely-coloured fruit on high trees is one of the best in our gardens. Therefore, in every case, whatever thinning of the branches we do, let the tree take its natural form, not only for its own sake or the greater beauty of natural form generally, but also for the interesting variety of form we get even among varieties sprung from the same species.

The trees to take their natural forms.

Clearly if we prune to any one ideal type of tree we can never see

the interesting variety of form shown by the varieties of one species, as the Apple and Pear. Keeping to the natural form of each tree, moreover, does not in the least prevent thinning of the branches where overcrowded—the best way of pruning.

Root pruning in the orchard.

Never in the orchard, where the true way is to let the tree take its natural and mature form, should the practice of root pruning be allowed. Our orchard trees—especially the trees native of Britain like the Apple and the Pear—are almost forest trees in nature, and take some years first of all to make their growth and then mature it. In gardens for various reasons men try to get in artificial ways the fruit that Nature gives best at the time of maturity, so root pruning was invented, and it may have some use in certain soils and in limited gardens, but one would hardly think it would enter into people's heads to practise root pruning in the orchard; though the word is a catching one and leads people astray. I have several times had the question seriously put to me as to how to root prune forest trees—a case where all pruning is absurd in any proper sense save in the way effected by the forest itself. The trees in the orchard should be allowed to come freely to maturity, and in the way the years fly this is not a long wait. By planting well-chosen young trees every year the whole gradually comes into noble bearing, and the difference between the naturally grown and laden tree and one of the pinched root-pruned ones is great.

Cider orchards.

Cider orchards are picturesque in the west of England and in Normandy, and so long as men think any kind of fermented stuff good enough for their blood, cider has on northern men the first claim from the beauty of the trees in flower and fruit, and indeed throughout the year. The cider orchard also will allow us to grow naturally-grown trees and those raised from seed. Cider orchards are extremely beautiful, and the trees in them take fine natural forms. They have a charm, too, in the brightness of the fruit, and also one in the lateness of the blooms of some, many of the cider Apples flowering later than the orchard Apples. In some cider orchards near Rouen (Lyons-la-Forêt) I saw the finest, tallest, and cleanest trees were raised from seed; the owner, a far-famed cider grower, told me they were his best trees, and raised from seed of good cider Apples. If he found on their fruiting that they were what he wanted as cider Apples he was glad to keep them; if not, he cut their heads off and regrafted them with good cider sorts. These were free and handsome trees with good grass below them, just like the Cherry orchards in the best parts of Kent, where the lambs pick the early grass. But however beautiful such an orchard, clearly it will not

give us the variety of form and beauty found in the mixed orchard, in which Cherry, Apple, Plum, Pear, Medlar, Quince, Walnut, and Mulberry take a place; there also the various interesting trees allied to our fruit trees might come in, such as the true and common Service tree, Almond, Cornelian Cherry, and Crab.

Grafting.

Where we made use of grafted trees—and generally there is no choice in the matter—we should always in the orchard use the most natural stock. It is much better to graft Pear trees on the wild Pear than on the Quince, a union harmful to the Pear on many soils. If we could get the trees on their own roots without any grafting it would often be much better, but we are slaves to the routine of the trade. The history of grafting is as old as the oldest civilisations—its best reason, the rapid increase of a given variety. In every country one or two fruit trees predominate, and are usually natives of the country like the Apple in Northern Europe and the Olive in the South. When men found a good variety of a native fruit they sought to increase it in the quickest way, and so having learned the art of grafting, they put the best varieties on wild stems in hedgerows, or dug up young trees and grafted them in their gardens. The practice eventually became stereotyped into the production of the nursery practice of grafting many varieties of fruit trees on the same stock, often without the least regard to the lasting health and duration of the trees so grafted. In some cases when we use the wild form of the tree as a stock for the orchard tree we succeed; but grafting is the cause of a great deal of the disease and barrenness of our orchards. Where we graft, it is well to graft low; that is to say, in the case of cider Apples, for example, it is much safer and better to take a tree grafted close to the ground than grafted standard nigh, as the high graft is more liable to accident and does not make so fine a tree. In the orchard the good old practice of sowing the stone or pip of a fine fruit now and then may also be followed with interest.

Starved orchards.

Even in the good fruit counties like Kent one may see in dry years orchards starved from want of water, and the turf beneath almost brown as the desert. Where manure is plentiful it is well to use it as a mulch for such trees, but where it is not, we may employ various other materials for keeping the roots safe from the effects of drought. Not only the tree roots want the water, but the roots of the competing grass suck the moisture out of the soil The competition of the grass could be put an end to at once, and the trees very much nourished, by the use of any easily found mulching from materials which are often abundant in a country place. Among the

Orchard bloom. Engraved from a picture by Mark Fisher. Kent.

best of these, where plentiful, is the common Furze, if cut down in spring and placed over the ground round the base of young or poor orchard trees. Next to furze, or even better, is the bracken, an excellent mulch for fruit and flower garden. It prevents the grass from robbing the trees and lets the water fall through to the ground, helping to keep it there, too, by preventing direct evaporation; moreover, the small leaves falling off nourish the ground. So again the sweepings of drives and of farm or garden yards are useful, and also any small faggots—often allowed to rot in the woods after the underwood is cleared. Then also there are the weeds and refuse of gardens of all kinds which form detestable rubbish heaps that would be much better abolished, and all cleanings from the garden placed directly over the roots of young orchard trees.

Even rank weeds, which swarm about yard and shrubberies, would help, and one of the best ways to weaken them and help towards their destruction is by mowing them down in the pride of their growth in the middle of summer—nettles and docks, as the case may be—and instead of burning them or taking them to the rubbish heap use them over the tree roots. Even the weeds and long grass growing round the base of the trees, if mown and left on the ground, will make a difference in the growth and health of fruit trees. Such care is all the more needed if our orchard is upon poor or shaly soils in the dryer counties; in naturally rich and deep soil we need it less.

Fencing the orchard.

For fences living things are at once the most enduring, effective, and in the end the best. We see the hideous result of the ironmonger's fence in marring the foregrounds of many landscape pictures. Holly, Quick, or Cockspur Thorn, with a sprinkling of Sloe or Bullace here and there, give us the best orchard fence; once well made, far easier to keep up than the iron fence. Yew is a danger, and a hedge of it should never be planted where animals come near as they usually do the orchard, and if the Yew comes by itself, as it often will, it should be cut clean out and burnt as soon as cut down. Holly is the best evergreen orchard fence for our country, and we should be careful about getting the plants direct from a good nursery—clean seedling plants not much over a yard high. The best time to plant Hollies is in May if growing in the place, but on light soil plant in autumn; all the more need to do this if we bring the plants by rail. Unless the soil is very light I should make the fence on a bank, because a turf bank is itself such a good fence to begin with, and a free Holly hedge on a good bank with, perhaps, a Sloe here and there through it, is one of the prettiest sights of the land, and forms the best of shelters for an orchard in our

country. Where shelter is much sought the hedge should not be clipped, and is much handsomer if free-grown. The orchard fence should not be cut in every year to a hard line, but Sloe, and May and Sweet Brier, and wild Rose left to bloom and berry, the hedge to be a shelter as well as a fence, and not trimmed oftener than every ten years or so. Then it should be cut down and woven together in the strong way seen in parts of Kent on the hills.

Kinds to plant.

The English fruit garden is often a museum of varieties, many of them worthless and not even known to the owner. This is wrong in the garden, and doubly so in the orchard, where the fruit trees should be trees in stature and none of poor quality. Too many varieties is partly the result of the seeking after new kinds in the nurseries. In orchard culture we should be chary of planting any new kind, and with the immense number of Apples grown in our own country already, we may choose kinds of enduring fame. It is the more necessary to do this now when good Apples are coming from various countries, where men do not plant a collection when they want a crop of a few first-rate kinds. So we should in our orchards never plant single trees, but always, having chosen a good kind, plant enough to make it worth gathering. Local kinds and local circumstances often deserve the first attention, and some local kinds of fruit are among the best. When in doubt always end it by choosing kinds of proved quality rather than any novelties that may be offered. Any fruit requiring the protection of walls or in the least tender should never be put in the orchard. It is probable that some of the fruit trees of Northern and Central Europe, and Russia, would be well suited for our climate, but as yet little is known of these except that they are interesting and many of them distinct. The vigour of the tree should be considered and its fertility. Kinds rarely fertile are not worth having, always bearing in mind, however, that a good kind is often spoiled by a bad stock or by conditions unsuited to it.

The flowers of fruit trees.

The beauty of flower of certain varieties may well influence in their choice. Once when talking with Mr Ruskin of the beauty of the fruit as compared with the flower of our northern fruit trees, he said in reply to some praise of the fruit beauty: "Give me the flower and spare me the stomach-ache!"

In view of the confusion brought about by fat catalogues, new varieties of doubtful value, the number of early kinds worthless for winter and spring use, and the planting of untried kinds, a good rule would be to put any kind we propose to plant under separate study as to its merits in all ways, and only plant one kind a year. The

kind chosen for orchard culture should be of undoubted merit and distinction, and of high quality when cooked, without which Apples to keep are worthless. In fixing but one kind a year, the first consideration should be its quality, and the second its constancy in bearing, as to which there is a great difference in Apples. Hardiness and vigour are essential, and our judgment as regards orchard planting should never be influenced by the produce of trees grafted on the paradise or other stocks which limit the natural growth of the tree.

Apples known for many years, like the *Blenheim*, *Kentish Filbasket*, *Wellington*, *French Crab*, *Sussex Forge*, *Warner's King*, *Yorkshire Greening*, *Tom Putt*, *Reinette Grise*, *Bramley's* and *Alfriston* should never be left out of our consideration in this respect, as, however they may be affected by situation or soil, their value has been proved, and that is a great point, as in the case of new varieties chosen for some one minor quality, such as colour, it is only after they have been grown for years we begin to find out their bad qualities.

Pear orchards for beauty.

Some of the most beautiful things in our garden or home landscapes are the orchards of the west of England, more often planted with the Apple than with the Pear. The Pear tree in this country should be much more grown as an orchard tree, for its beauty even if not for its fruit, which yearly grows in value. Some Pears of our own time, like *Doyenné du Comice* and *Beurré Hardy*, are worth a score of the old kinds. The Pear tree is finer in form and stature than the Apple, and it is not rare to see trees in Worcestershire of the size of forest trees. Such trees, with their varied and picturesque form, are worth thinking of when planting for beauty.

The use of the Quince as a dwarfing stock for many years past in England has been against the Pear as an orchard tree. No Pear grafted on this stock ever succeeds as a standard tree. In our fertile valleys and the rich soil of gardens the Quince is for some kinds often a good stock, but over a large area of poor sandy and chalky land it is worthless; and its use has done much harm to Pear cultivation. In using the Pear, or natural stock, we may hope that it will do well on any land, be it heavy Wealden clay or on upland soils. It is true we must wait for results; the standard Pear is a forest tree in its way, and must be allowed time to mature, but it is surely better to let the years run by than to plant trees which may never succeed as standards. For trees so planted to endure we should choose good kinds that ripen in our country, and see, in every case, that they are grafted on the wild Pear—their natural stock—since we cannot easily get them on their own roots. The most important point is that of varieties. We should never plant any but good Pears, which,

as standards, will ripen in our country under any fair conditions, such Pears as *Beurré Giffard*, *Beurré Goubault*, *Beurré Dumont*, *Beurré Hardy*, *Fondante des Bois*, *Rousselet de Reims*, *Doyenné du Comice*, *Marie Louise*, *Urbaniste*, *Soldat Laboureur*, *Triomphe de Jodoigne*, *Comtesse de Paris*, *Nouvelle Fulvie*, *Bergamotte Saumier*, *Charles Cognée*, *Doyenné d'Alençon*, *Josephine de Malines*, *Suzette de Bavay*.

Fruit trees grown in any way are fair to see in the time of flower and fruit, but our orchard must be in turf if we are to have the best expression of its beauty. In fruit gardens where the whole surface is cultivated with small fruits below and taller trees overhead we may get as good, or, it may be, better fruit, but we miss the finer light and shade and verdure of the orchard in turf, the pretty incidents of the ground, and the animal life among the trees in spring, as sheep in Kent, and the interest of wild gardening in the grass. Also the orchard turf, by its shade or shelter, or in some way, becomes most welcome nibbling for lambs and calves in the spring. A gain of the orchard in turf is that we can plant it on any ground, however broken or steep, and in many parts of the country there is much ground of this sort to be planted. Now, while we may in the garden or the fruit garden plant trees without stakes, we cannot do so in the grass orchard, because of the incursions of animals; therefore staking is needed, not only to support the tall and strong young trees which we ought to plant, but also to guard against various injuries. The best is to use very strong stakes and make them protect and support the trees, and also carry the wire netting which is essential wherever rabbits, hares, goats, or other browsing animals exist. The way to do this is to have a very stout stake—Larch or Old Oak. Sometimes in the repairing of old sheds a number of old Oak rafters are rejected—excellent for staking young trees in orchards, first digging the hole and putting the stake firmly into a depth of 3 feet below the surface. Cradles of Oak and iron are much in use; the first is very well in an Oak country where labour is plentiful; iron is costly and ugly, and not so good as the single stout stake, which is easy to get of Larch or stub Oak in many country places. The common way of tying a faggot of Quicks or any thorny shrub is often good when done by a good fencer. The trees should be tied with care with soft ropes of straw or jute, and when planted be loosely but carefully wired with netting well out of the reach of browsing animals. This wiring is supported well by the strong stake, and, well done, it keeps rabbits and hares, as well as cattle, at bay, and worse than all for trees, young horses. A usual way in Kent is to drive in three stout stakes, 6 feet or more in height, round the tree, and fasten cross-bars to them. This can

Staking orchard trees.

be done at a total cost of about 10d. a tree, and should last twelve to fifteen years.

The orchard wild garden.

One of the reasons for a good orchard, from the point of view of all who care for beauty, is its value for wild gardening. It is so well fitted for this, that many times Narcissi and other bulbs from the garden have even established themselves in its turf, so that long years after the culture of the flowers has been given up in the garden, owing to changes of fashion, people have been able in old orchards to find naturalised some of the most beautiful kinds of Narcissi. Where the soil is cool and deep, these flowers are easily grown, and in warm soils many of our hardiest and most beautiful spring flowers might easily be naturalised. On the cool side of the orchard bank, Primrose and Oxlip would bloom long and well, and on all sides of it Daffodils, Snowflakes, Snowdrops, wild Tulips, or any like bulbs to spare from the garden; and from the garden trimmings, too, tufts of Balm and Myrrh to live for ever among the grass of the bank. The robin would build in the moss of the bank, the goldfinch in the silvery lichen of the trees, and the thrush, near the winter's end, herald the buds with noble song.

Climbers on orchard trees.

Bold planters need not hesitate to adorn some of their orchard trees with graceful climbing plants. A few of these climbers would be too vigorous eventually for the fruit tree, but a good many are never so on vigorous orchard trees. The autumn-flowering Clematis (flammula) is such a light grower that it would not make much difference to the tree, and there are a number of wild Clematis with the same light character that would not hurt an orchard tree. Some of the fine-leaved Vines, too, would give a dash of rich colour in the autumn, and do little harm, and some of the more fragile Honeysuckles might also be tried.

CHAPTER XXXVI.

LABOURS FOR GOOD OR EVIL: DRAINING: ROTATION: MONOTONY: GLASS: MOVING EARTH.

THE cost of the making and keeping of the gardens and pleasure grounds of the British Isles is too vast to realise. No other people in the world spend so generously on their gardens and plantations—not a selfish end either, as all noble planting and gardening add to the beauty of the land. In every case it is therefore worth while asking, does the labour so freely given work for good ends—for ugliness or beauty, waste in stereotyped monotony, or days well spent in adding to the treasures of our gardens and plantings, both in enduring variety and in picturesque effects; pictures, in fact, all round the year? There is immense and hideous waste in misapplied labour and bad art, and therefore some of these enemies of good work deserve a little thought.

Soils good and bad.

Most garden lovers strive for an ideal soil, but this does not always lead to happy results, and, even if we could have it, would only lead to monotony in vegetation. No doubt many will seek at all costs for the soil called the best, but the wisest way is rather to rejoice in and improve the soil fate has planted us on. A good deep and free loam is best for many things, and for high cultivation or market work, deep valley soils are almost essential, but we often see poor peats giving excellent results from a flower gardening point of view, in enabling us to grow with ease many more kinds of plants than could be grown on heavy soil. How fertile sand may become with good cultivation is shown by the fact that some of the very best soils for hardy plants are those that have been poor sea sand, but improved by cultivation, and sometimes such soils are drought-resisting, as on reclaimed seashore lands. Yet now and then we see certain sandy soils absolutely refuse to grow Roses and Carnations, and in such cases it is often better to give up the struggle. Chalky hills are wretched for trees and some shrubs, but there are few soils more congenial to garden vegetation than some chalky soils, and chalk tumbling into a valley soil is often excellent.

The most hopeless soils are the true clays, but the word "clay" is used in a loose way by many who have never seen a real clay. In the east of England and in Ireland, for example, the term is often used for dark, free soil. The true clay which occurs in the northern suburbs of London and near Horsham is not a soil on which a man could get a living, or if he does so he will get one anywhere! With such a soil our only hope is to cart good earth on to the ground. Whatever the nature of the soil in a given garden, it should to a large extent govern what we grow. If happy enough to have a sandy peat, how easy it is to grow all the lovely evergreens of the northern mountains, which rejoice in such soil—things which, if they live on loamy and heavy soils, are never really happy thereon. On such soil, too all the most beautiful kinds of hardy shrubs may be grown without trouble, and planted among these shrubs the Lilies and hardy bulbous flowers of Japan and America. If a deep and at the same time poor sea sand comes in our way, we can make perfect bulb gardens on it, and also grow trees and flowering shrubs very well after a time.

Local and natural soils.

Soil must not always be blamed for failure, because rainfall, elevation, and, very often, nearness to the sea will affect certain plants very much. Thus shrubs that do well near the sea will, on the same kind of soil, perish far inland. It is essential to study the secret of the soil and find out the plants that thrive best on it. Once free from the limits and needs of the flower garden proper, the best way will often be to use any local peculiarities of soil instead of doing away with them: A bog? Instead of draining it keep it and adorn it with some of the often beautiful things that grow in bogs. A sandy knoll? Plant with Rosemary or Rock Roses. A peaty, sheltered hollow? Make it into a beautiful Rhododendron glade, and so get variety of plant life in various conditions.

Then as regards the soil and the natural habitats of plants, there is no doubt that it is useful to know where they come from, whether plains, valleys, or rocks, and what soil they grow on; but it is a knowledge that may sometimes mislead, because rainfall and elevation and other causes may lead us to suppose results due to soil which are really so to accident of position. Many of the beautiful plants of the mountains of the East, such as Aubrietia, and a number of rock plants which grow in any soil, would do no better if we tried to imitate their actual conditions of life in their native habitats, which are often absolutely different from the soils of our lowland gardens in which many rock plants thrive and endure for years.

Many think that heavy watering is necessary in seasons of drought, and it may be worth while showing how such heavy labour may be avoided. There are soils which are so thirsty, like the hot sandy

soils of Surrey, that watering is essential, and some chalky soils, too, are almost hopeless without heavy watering, while water is often extremely difficult to get enough of on dry hills. But under general conditions there is not much trouble in getting rid of this labour and its attendant ugliness. The essential thing is to make the beds deep enough. Even with the best intentions, many people fail to do this, and workmen in forming gardens are sometimes misled as to the depth of soil in beds made when gardens are being laid out, the soil when it settles being really much less than it seems in the making. The best way for those who care for their flowers is to dig the beds right out to a depth of 30 inches below the surface before any of the good soil is put in. Then, if for general garden use such beds are filled in with good, rich, loamy soil and are gently raised, as all beds should be in wet countries, 4 inches or 6 inches above the surface, they will rarely be found to fail in any drought. Much depends on the size of the bed; the little, angular, frivolous beds which have too often been the rule in gardens cannot resist drought so long as broad simple beds. With these precautions, and also autumn and winter planting, we ought, in the British Isles, to free ourselves from much of the heavy labour and cost of watering, and it would be better to have half the space we give to flowers well prepared, than always be at work with the water barrel.

Cultivation and water.

To be busy planting in autumn and early winter is a great gain too, because the plants get rooted before the hot time comes, and the kind of plants we grow is important as regards the water question. Where we have deep beds of Roses, Lilies, Carnations, Irises, Delphiniums, and all the noble flowers that can be planted in autumn or winter, we may save ourselves the labour of watering often. Well prepared beds of choice evergreen or other flowering shrubs, with Lilies and the choicest hardy flowers among them, also resist drought well. Thus it will be seen how much we gain in this way alone by the use of right open-air gardening.

What is here said, although true of the south of England and dry soils generally, is not so as to soil on cool hills, and in the west country where the rainfall is heavier. In such cases it is not nearly so important to have the soil so deep, and a good fertile soil half the depth, with copious rain, may do. But, taking the country generally, there is no doubt that such deep culture well repays the doing. The farmer is often unable to alter the staple of his ground owing to its extent, but the flower gardener, dealing with a much smaller area, should never rest until he has got a deep as well as a good soil. This is given to many by Nature in rich valley lands, and on such

happy soil the flower gardener's main work as regards the labours of the soil is changing the crop now and then, with some modification of the soil to suit certain plants.

Where, owing to the dryness of the soil or subsoil, or to shortness of the rainfall, we have to resort to much artificial watering, it is a great point to save the rain water as the best of all water, not only for household uses but for plants. Next to it comes river water, but to the gardens that want most water, rivers, unfortunately, do not come, so that for garden use it would often be very wise to do what people do more in other countries than ours, and that is, save all the rain water we can instead of letting it run to waste as it does so often.

Soft water best.

In our country, too, much thought and labour are given to drainage in the flower garden, to the neglect of change of plants and deep cultivation. During our hot summers some way to keep water in the beds is more important than getting rid of it. Some soils are in little need of artificial drainage, such as free sands, sandy loams, chalky and limestone soils, and much ground lying high, and much alluvial land. Houses are not usually built on bogs or marshy land, and in the course of years the ground round most houses has been made dry enough for use, and hence elaborate work in drains, bottoming with brick-rubbish or concrete, is often wasted labour. In some years even in the west country we may see plants lying half-dead on the ground for want of water, and the same plants in deep soil, and where no thought was given to drainage, in perfect health at the same time. There are places where, owing to excessive rainfall and the wet nature of the soil, we may have to drain, but it is often overdone.

Drainage.

Apart from the over-draining for ordinary garden things, it may be well to remember that flower garden plants in our country are often half-starved through drainage, like Phlox and scarlet Lobelia, which in their own country are marsh plants, or inhabit the edges of pools. In the southern country they simply refuse to show their true character where the ground is drained in the usual way.

Gardeners' land and farmers' land are usually wholly different. Drainage is often the simplest and best way for the farmer to alter the tilth and texture of saturated and cold or sour land, whereas the flower gardener, dealing with a small space for his beds, has the power of altering the tilth and texture of his land in a thorough way, and so making it open to the influence of rain and air. The position of the flower garden is usually wholly different from that of agricultural land. The flower garden itself is frequently raised, and in a terraced

or at all events often dry position, where the main drainage is long settled, and gently raising the surfaces of flower-beds, to a height say of 4 inches to 6 inches, enables us to get rid of the surface water. By raising our beds slightly—not in the ugly way practised in the London parks—we free the surface of any water lying on it, and this is a good plan to follow, except in hot and shallow soils, where it would be better not to raise the surface above the level.

Rotation in the flower garden.

A cause of the poor growth of hardy flowers is want of change of soil, and in addition the soils in which they grow are often robbed by a network of hungry tree roots. There are botanic gardens in Europe where the same wretched plants have been starving in the same soil for fifty years, and little ever done to help them. So, again, there are favourite borders in gardens which are almost as much in want of a change, but, owing to their position sometimes being a favourite one, people hesitate to give it to them. In such cases we should prepare a new border for the plants and remove them, and trench, renew and improve the soil of the old beds or borders, afterwards taking a crop as different as possible for a year or two. If we take a crop of annual flowers, the annuals rejoice in the fresh ground, and they might be followed by a year of Carnations, after which a return might be made to a good mixed border. When, however, we do change a border or bed, the staple of the soil ought to be made deep enough and changed if need be. In dealing with a soil which is too rich in humus, an addition of lime will improve it, but generally the soils are too poor, and require renewing and deepening. Bedding plants have the advantage of fresh soil and often a total change every year, and hence the bright vigour they often show when the seasons are fair. A little of the same generous change would help Roses, Lilies, and all the finer things in an equal degree, though many of these will be quite happy in the same soil for years if it be well prepared at first.

Fallen leaves.

Many people fidget at the sight of beautiful leaves in autumn, instead of enjoying them, as Shelley did, and gardeners are often sweeping them up when they would be much better employed planting good plants or shrubs. What are we to do with the garden leaves? We cannot, it is true, have them in drifts in the flower garden, but it is better to let them all fall before we take much trouble in removing them. In gathering them up we may best add them to a place set apart for leaf mould. But in every case where they may be let alone it is much better to let them stay on the surface of wood, grove, shrubbery, or group of shrubs, for protection and nourishment for the

ground. If any one during the hot years that we have had—as in 1893—had stood on a height in a woody country, he would have seen that, while the fields were brown and bare, and cattle and crops distressed for want of water, the wood retained its verdure, and the growth of the year was as good as usual. Why was this? It is explained by the beautiful function of the leaf, which not only does the vital work of the tree, but also shields the ground from the direct action of the sun. When the leaf has fallen its work is not half done, as it protects and nourishes the roots throughout the year, so that in the hottest years the fibres of the trees find nourishment in decaying leaves. This surely is a reason that leaves should not be scraped out from beneath every shrub or tree, and there is no reason whatever why they should form part of the rubbish heap.

Wasted labour.

It is not only the better use of the waste as a fertiliser that is a gain, it is the saving of very troublesome labour, often occurring in the warmest part of the year, when every hour is precious over the really important work of the garden—getting in crops of all kinds at the right time and in the best way. Also we save the disfigurement of the rubbish yard itself, and get rid of the smoke of the fires kept going to consume it—another nuisance about a country house or garden. The ash, the one result of all the waste of labour and filth of the rubbish heap, is certainly of some use, but not one-sixth of the good of the stuff used in the direct way. It is not only the summer aid we gain, but all we put on in this way settles down in winter to a nice little coat of humus, which nourishes the roots and protects them from frost as well as heat.

Weeds and their seeds.

The destruction of the seeds of weeds is the only shadow of reason for the rubbish heap, but it is bad gardening to let weeds go to seed. And though certain areas of town gardens have no neighbours from which seeds can be blown, this is not so in the country, where weed seeds from woods and fields and young plantations abound in the air. There is no good remedy for weeds except early and regular hoeing. There are many conditions in which, even if we do allow weeds to go to seed, they can be used as a mulch; as, for example, in young orchard and turf and other planting in or near turf where weed seeds can do no harm. Burning, therefore, should be kept to a few essential uses. The source of success in flower gardening is to be always busy sowing or planting; there is scarcely a day or a week when some things have not been planted or attended to if we want a succession of beauty; but when the men are from morn to night busy hoeing and watering and with other routine work, it is difficult to get time

for securing the successions of plants of various kinds on which the lasting beauty of a garden at all seasons depends.

The old labour of grubbing up walks, which was so constant and dreadful in the very heat of summer, is got rid of by weed-killers, of which one dressing a year will sometimes suffice to keep the walks clean, and, better still, prevent us from having to rip up the surfaces of the walks, which was common in every garden until quite recently, and is carried on still in many places. By abolishing ignoble routine work, in this and all ways we can, we have time for the real work of the garden, in adding to its beauty with new or beautiful things and improved ways of growing and arranging them.

Fire as a cleanser.

A fire on the spot is a great aid in the garden when active changes have to be made, and foul borders or shrubberies renovated or replanted. Where, in stiff soils, Twitch and other bad weeds take possession, with perhaps a number of worn-out shrubs, the simplest way is often to burn all, not trying to disentangle weeds from the soil in the usual way, but simply skinning the surface 2 inches, or more if need be, and burning it and the vital parts of the weeds, first removing any plants that are worth saving. In light soils the labour of cleaning foul ground is less than in heavy, adhesive soils, but fire is a great aid in all such cases. If we are removing ugly and heavy masses of Laurels, or other evergreens which have never given grace or flower to the scene, we should burn them root and branch at the same time. The result will be that we get rid of our worst weeds, and turn enemies like Goutweed into ashes. This weedy surface of garden ground is often some of the best of the soil, and it is much better to keep it where it is, but purified. Regular cleaning will keep down all young weeds, but it is a struggle to get the old and bad weeds out of the soil, owing to the broken roots of Bindweed, Twitch and Goutweed, which escape the closest forking and sharpest eyes. There is no barrowing or carting to take the weeds to some rotting heap, while, on the other hand, the friendly fire eats up and kills at once the whole of them and converts them and the burnt surface they infested into good earth. Whatever we may think of cremation for ourselves, it is a good friend in fighting weeds and in helping us to thoroughly cleanse foul garden ground. We have not even the trouble they had with Don Quixote's books, which was to carry them into the yard to burn them.

Evaporation.

Mulching or covering the surface with various kinds of light materials, such as leaf mould, cocoa fibre, manure, and sand, or anything, in fact, which gives an inch or two of loose surface to the earth and prevents evaporation, is a great aid on many soils, but not so

important where the beds have been thoroughly prepared, at least not for Roses, Carnations, and many of the best flowers, because, if the roots can go down and find good soil as far as they go, they really do not want mulching, save on very hot soils. Mulching of various kinds or loosening the surface of the ground is much easier to carry out in the kitchen and fruit gardens or orchard than in the flower garden, all the surface of which should be covered with living things during the fine season. This the prettiest way and not difficult to carry out we often see in cottage gardens, and in nature itself where the health of the forest and other fertile lands depends to a certain extent on the ground being covered with vegetation, which of itself prevents direct evaporation. Taking a hint from this, I am very fond of covering the surface with dwarf living plants of fragile nature, which do not much exhaust the soil, and which in very hot weather may help to keep it moist. This is done in the case of Roses and other plants which, being rather small and bare at first, want some help to cover the ground, and a number of very pretty plants may be used for this purpose, which will give us bloom in spring and good colour on the ground. One result of it is that we may have a beautiful spring garden in addition to the summer garden—that is to say, if our garden is planted for summer and autumn with Roses and the like, by the use of Tufted Pansies and other dwarf plants in the beds we get pretty effects early in the year, and through this living carpet may come up many pretty bulbs. Thus we may have in the same beds with a little care and thought, two or three different types of flower life.

The plants that may be used in this way are numerous, and mostly rock and mountain plants of Europe and cold countries, evergreen, often bearing pretty flowers and good in colour at all seasons, spreading into pretty carpets easily, and quite hardy, taking often a deeper green in winter, so that used over permanent beds they help to adorn the flower-beds in winter. Through them in the dawn of spring the early Crocus, Scilla, and Windflower come up to find themselves in green turf of Thyme; Rockfoil; Stonecrop; varying these according to soil, altitude or position; the cooler north favouring many mountain plants, though some face the ardours of the warmer sun.

Monotony.

A grievous source of wasted effort in gardens is monotony arising from everybody growing what his neighbour grows. Thus it comes that the poor nurseryman who attempts to grow new or rare trees or shrubs very often finds them left on his hands, so that many country nurseries only grow a few stereotyped things, and we see public gardens and squares in London given over to the common Privet, the common

Lilac let to run as a weed, and the common Elder, as in Lincoln's Inn Fields.

Every lover of the garden could do something to check this fatal monotony by taking up some plant, or family of plants, for himself, which perhaps he is unable to find in the nursery gardens near at hand. There are not only many beautiful species of plant which are excluded from the ordinary nurseries, but even special nurseries, as those for Roses, often exclude good kinds from their collections. It is not only the introduction of new plants or species we have to think of, but the raising of new forms (hybrids or varieties), the fine cultivation of neglected groups, as the beautiful forms of our native Primrose, the making more artistic use of old and well-known plants, the skilful adaptation of plants and trees to the soil so as to get the highest beauty of which it is capable without excessive care, and without the deaths visible in many places after hard winters. Those who seek to break the monotony of gardens must be prepared to face some trouble, and must not take the least notice of what is thought right in the neighbourhood, or of what can be obtained from the nearest nursery garden. The further afield they look, probably the better in the end it will be for them if they would escape from the trammels of monotony.

Attaching climbers to walls.

Perhaps the most miserable of all garden-work is that of nailing the shoots of trees to walls, on cold days, and the value of climbing plants now in our gardens is so great, that the best mode of attaching them to walls is a question which, though it may seem a small one from some points of view, is important, and by no means settled for the best. In our self-styled scientific age—the age also of the galvanised iron church and the ironmonger's fence, which is no fence—our gardens have been invaded by galvanised wire, which is put up at great expense on garden and house walls, and is thought to be an essential improvement in all new work. The question does not merely concern walls for climbers round the house, but also walls in the fruit garden. In our cold country we cannot ripen the Peach or the choicer fruits without the aid of walls; galvanised wire is used in many gardens, but many growers discover that its effect on the trees is not good. There is a foundation of fact in these complaints, and they are common to French and English gardeners. In France, where the cultivation of wall fruit to supply the market with Peaches and fine winter Pears is carried out well, the best growers are against the use of galvanised wire, and think it much better to have the wooden lattice only against the wall; so they keep to the older and prettier way of trellising the wall. For those who care about effect this is well, for whatever harm

the wire may do to the tree, of its ugliness there can be no doubt. The old French and English way of fixing branches to walls with trellis-work made of Oak in about 1-inch strips was a very good one. One advantage of such woodwork is that it looks well on the walls even before we get our plants up, and there is the great facility of being able to tie where we wish, thus avoiding the use of nails and the other miseries of training against walls.

There remains the question of fixing our lattice-work of Oak, Chestnut, Pine, or Bamboo. In old walls holdfasts must be driven; in new ones pieces of iron with strong eyes should be laid along here and there in the courses of brick or stone as the work goes on.

It is a great thing to be relieved from the ugliness and injury of the galvanised wire. We would like to go a little further and keep to old ways of tying things on walls. Those who look through their bills may perhaps come upon items, and not small ones, for tarred twine and other means of tying. In old times the shoots of the Yellow Willow did the work of tying fruit trees to walls better than any tarred twine as far as the main branches were concerned. To say that it is impracticable now is nonsense, as in some great nurseries where millions of plants are sent out every year, every lot is tied with Willow. The French way of using a Rush for tying, instead of twine or matting, is an excellent one. It is a Rush which is harvested and dried carefully, and it is the simplest thing in the world to tie with so as to allow for the free growth of the branch, and yet keep the shoot quite secure.

Whether staking trees and shrubs or wind-waving is the worst evil is doubtful, but much harm is done by staking. It is costly and troublesome, especially so for those large trees that are seen in pleasure grounds, surrounded by a kind of crinoline of galvanised wire. The evil of staking arises largely from planting trees too big as "specimens." To plant these is tempting to many, but generally we get a much better result from small trees that want no staking. Planting ornamental trees of considerable size is so common that staking is frequently done, and very often the trees are injured by the stakes, not only at the root, but also much in the stem, which sometimes leads to canker. It is known that canker (as in the Larch) enters the trees more readily where the wounds are ready to receive the spores, and we often see fruit-trees badly cankered through staking.

Staking trees.

The wire-roping business for trees is a nuisance, as the ropes cut in if in the least neglected, and the tree often snaps there, and when the ropes are finally removed the trees often go down in gales. The best cure for the waste and dangers of staking is to plant

small trees, but often where this is not done for any reason we may do good by cutting in the side shoots close to the stem. This leaves the tree with little for the wind to act upon, and the need of staking is avoided without injury to the tree. Transplanting trees involves so much injury to the roots that somewhat reducing the tops does good in all ways.

At Kew, when a large tree is transplanted, it is guyed up with three lengths of soft cord (commonly called "gaskin") if it appears likely to become loose. This is better than a stake, cheaper, and less likely to injure the stem by abrasion. A tree with branches low enough can be stayed by driving into the ground three stout stakes at equal distances round the tree, nearly at the circumference of the branches, and tying a branch to each of the stakes.

The picturesque grouping of trees and shrubs is a gain in the avoidance of the trouble and danger of staking. The pinetum, as seen in many country seats, is a scheme in which trees are isolated and dotted so as to encourage them as "specimens," which is the wrong way and the ugly way. In Nature these trees are almost always massed and grouped close, so that they shelter each other, and if in planting them we plant as a wood, closely, thinning them very carefully, we find them make trees and give better effects than in the common way they are generally placed, as the trees protect and comfort each other, and shade the ground.

Glass-houses.

Among the evils of the "bedding" and "carpet system" is the need of costly glass-houses in which to keep the plants all the winter, not one in ten of these plants being as pretty as flowers that are as hardy as the grass in the field—like Roses, Carnations, and Delphiniums. It is absurd to grow Alternantheras in costly hothouses, and not to give a place to flowers that endure cold as well as Lilies-of-the-Valley. Glass-houses are useful helps for many purposes, but we may have noble flower gardens without them. To bloom the Rose and Carnation in midwinter, to ripen fruits that will not mature in our climate, to enable us to see many fair flowers of the tropics—for these purposes glass-houses are a precious gain; but for a beautiful flower garden they are almost needless, and the numerous glass-houses in our gardens may be turned to better use.

For those who think of beauty in our gardens and home landscapes, the placing of a glass-house in the flower garden or pleasure ground is a serious matter, and some of the most interesting places in the country are defaced in that way. In the various dividing lines about a country house there can be no difficulty in finding a site for glass-houses where they cannot injure the views. There is no reason for placing the glass-house in front of a beautiful old house,

where its colour mars the prospect. Often, in looking across the land towards an old house, we see first the glare of an ugly glass shed. If this were the case only in the gardens of people lately emerged from the towns to the suburbs of our great cities, it would not be so notable; but many large country places are disfigured in this way. And, apart from fine old houses and the landscape being defaced by the hard lines and colour of the glass-house, there is the result on the flower garden itself; efforts to get plants into harmonious and beautiful relations are much increased if we have a horror in the way of glass sheds staring at us. Apart from the heavy cost of coal or coke, the smoke-defilement of many a pretty garden by the ugly vomit of these needless chimneys and the effect on young gardeners in leading them to despise the far more healthy and profitable labours of the open garden have to be considered in relation to the cost, care, and ugliness of the glass nursery as an annual preparation for plants for the flower garden, these plants being with few exceptions far less precious in every way for flower garden or for room than those that are quite hardy.

Moving earth.

Next to moving heaven, the heaviest undertaking is that of moving earth, and there are no labours of gardening men that lead to more wasted effort, where care and experience are not brought to bear on the work. Labour in many parts of the country has become dearer, and the question of moving earth without needless waste of energy is a serious one for all who have much groundwork to do. As instances of misuse of labour we see the soil from foundations carted far, and then put deep over the roots of old trees, to their death or injury. A man of resource would place this soil in some well-chosen spot near, and having first removed the surface soil and, resurfaced with it, plant it with a handsome group of beautiful shrubs or trees, so that the surface would in no ugly way differ from the general lie of the ground near. Carts and horses very often lead to waste of labour in removing earth when barrows and a few planks would do the work better.

In necessary groundwork there is inevitably much moving of earth in getting levels, carrying roads and paths across hollows, and for various other reasons. We should make a rule of getting the soil in all such cases as near at hand as possible. Mistakes in levelling ground are frequent, and often lead to twice moving of soil. The best man for groundwork is often a good navvy; many such men know how to make heavy groundwork changes without putting a barrowful of soil in the wrong place. Very often spare soil has to be removed, and in this necessary work ugly mounds are made, when, by a little care in choosing the place well and never leaving any ugly angles, and making the ground take the natural gradation of the adjacent

earth, it could be well planted. Hardy trees take well to such banks if the good soil is kept on the top, as it should always be.

The same remarks may serve for the moving of turf, gravel, stones, and soil, save that to get good soil for the formation of beds, we must go where the good soil is; whereas for the bottoms of roads and paths, the support of banks, base of terraces or mounds, much saving may be effected by getting what we want in the nearest possible place, never fearing to make a hollow if need be, as that can be so easily planted with some free-growing tree or shrub; the hardy Pines, like Scotch, Corsican, and Silver Firs, being excellent for this, as they thrive in almost any earth, and often on surfaces from which the whole bed of fertile soil has been removed.

Moving turf, etc.

Apart from essential groundwork, there is the diversifying of ground artificially, as may be seen in our parks, owing to the false idea that you cannot make level ground picturesque with planting. Proof that this is not impossible may be seen in many a level country planted by Nature, as in the forest plain and in many a park and pleasure ground in Germany, France, and Britain. Trees are given to us to get this very variety of broken surface, and the idea that to make a place picturesque we must imitate—and usually badly imitate—naturally diversified ground is most inartistic. No doubt broken ground has many charms, but so has the fertile plain, and the best way is to accept and enhance the beauty of each variety of surface. To do so is the planter's true work. In cities and suburbs there is often occasion to conceal ugly objects, and earth if to spare may be used well and wisely in raising at once the base of a plantation of young trees; but an enormous amount of labour given to making artificial mounds might be saved without any loss, and with much gain to garden design.

The mania for foolish groundwork may be often seen, one of its results being the burial of the tree base, surrounded, perhaps, with a brick-lined pit-hole, as in St James's Park. Shooting earth and rubbish to fill up the hollows on such a precious space as Hampstead Heath is common, and as the surrounding district is busy in building, these attempts are, we fear, often the occasion of finding a shoot for earth and rubbish. The bringing in of such rubbish should be absolutely forbidden, as the only effect of this filling up of hollow places is to destroy the incidents of the ground, usually far prettier in form than the results of smug levelling up, or, worse still, the formation of such artificial mounds as we see examples of in the parks. Even the squares in our level Thames valley are not exempt from outrage of this kind, of which, perhaps, the most hideous example is that of Euston Square. A high and ugly earth-bank

In our public parks.

has been put all around the Square, so steep that even the cheap nursery rubbish of the London squares—Privet and Elder—refuses to grow upon it, and so in the summer days, instead of the grass and tree-stems and cool shadows, a bank of dusty rubbish meets the eye!

Another serious source of waste of the inexperienced in groundwork is burying the top surface, the most precious, and in many cases the result of ages of decay of turf and plants. In alluvial land and light friable hill soils this mistake does not so much matter, but in heavy land where there is a clay subsoil it is fatal. The first thing in all groundwork is to save the top soil with the greatest care, for the sake of using it again in its proper place; and how to save it, so that it may be available at the end of the work, is one of the most essential things the good ground-worker has to think of.

Trenches for the reception of pipes, drains, and foundations should not be opened until the materials are at hand, as in wet weather doing so often leads to the sides falling in and much needless labour. The direction of walks, roads, or designs for beds, borders, or gardens, should be carefully marked out and looked at from every point of view before carrying them out, having regard to their use and their relation to all things about them, and not merely to any plan on paper. Attention to this will often save much labour in groundwork.

Other causes of waste.

A cause of much waste of labour in moving soil is the usual way of treating mud after the cleansing of artificial ponds—often a poor inheritance to leave to one's children. The silting up with mud goes on for ever, and while the mere expense of getting this out of the pond bed in any way is usually great, the cost is often increased through the idea that the stuff is of manurial value. This leads people frequently to heap it up on the banks to dry, then to liming it, and eventually to moving it on to the land, these various labours adding to the disfigurement of the foreground of beautiful ground often for a long time. Pond mud has very little manurial value generally, though it will differ to some extent according to the sort of soil the supply comes from. Usually, however, it has very slight value, and any labour bestowed upon it from that point of view is nearly always wasted. The best and simplest way is to put it direct on to some poor pasture near, or on to any ground where it may be got rid of with least labour to man or horse. Where the pond is ugly in outline and not essential either for its beauty in the home landscape or for its uses for fish or water store, it may often be worth considering whether the best way would not be to let the water off and turn the mud bed into a handsome grove of Willows and

Dogwoods, and an excellent covert at the same time. I know nothing among trees quite so good in effect in the landscape, winter and summer, as the white, red, and yellow Willows, with an undergrowth of the red Dogwoods.

Where possible it is best to do without labels, except where we grow many kinds of things that differ by slight shades, as Carnations and Roses. The contents of a garden are usually in a state of change; we are continually adding to and taking from them; new plants are introduced; a severe winter kills a number of shrubs, which we determine not to replant. Fashion changes the garden vegetation too, and then the permanent labels, cast and burnt into hardware and cemented in cast iron, are thrown aside. I prefer a label which can be used again, such as a cast-iron label of "T shape" or, in other words, a slip of cast iron with an oblong head slightly thrown back. These are cast very cheaply in the iron districts. We have to paint them and write the names of the trees on them when they come to hand; but that can be readily done by a handy painter in winter. In a large garden, where much naming is required, the best way is to train a youth who is likely to remain in the place, by placing a copy of the desired kind of letters before him. It is an advantage to give the label a coat of copal varnish when the letters are dry, and generally to use white letters on a black or dark ground, and give three coats of black over one of red lead. These are the best labels for the shrubs and choice young trees of a pleasure ground or flower garden. The painting will last for twenty years, and if we cease to cultivate the plants to which they belong, the labels may be repainted.

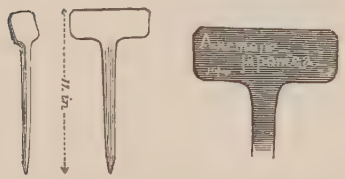
Labels.

Simplest label for trees.

Position for tree label.

With big trees it is always a mistake to use a ground label. The best labels for large trees are made of pieces of tin about $4\frac{1}{2}$ inches by $3\frac{1}{2}$ inches. About half an inch of the upper edge should be bent at a right angle so as to form a little coping for the label, two holes should be made just beneath the little angle, through which a strong copper wire should be put and firmly nailed to the tree. Place it so as to be easily read, at about $5\frac{1}{2}$ feet from the ground. Paint it dark brown or black with white letters, and it will last for many years. All labels inserted in the grass in pleasure grounds are liable to be pulled up by mowers or others, and in this way to get lost, while the labels on the stems are safe from such mishaps.

For low trees and bushes to which copper wire may be fixed with ease, the simplest and most enduring labels are those that are made of cast metal galvanised, and as they are very enduring they are best for hardy trees and shrubs. The words on them should be as few as may be, and all needless ones omitted. Thus in fruit-tree labels it is needless to use the word Pear or Apple, but simply the variety, as "Ribstone." This plan makes these labels more legible than when they are crowded with letters. For half-hardy plants, annuals, and plants of a season only, wooden labels are often the most convenient. In most gardens it is the practice to write the name at the part that goes in the ground, and to go on from thence to the top—a bad way, for the label always begins to decay at the base, and thus the beginning of the name is lost, while the end of it may be quite legible. After a little practice it becomes as easy to write from the top as from the other end, and, in writing the names, always begin as near the top as possible.



Cast-iron labels; the simplest, neatest, and best form for shrubs, bold herbaceous plants, and for all cases where the label has to be fixed in the ground.

The use of the wooden label should be given up in favour of labels with raised or incised letters. The main reason is that the endurance of the wooden label is too slight; moreover, some kinds of good stamped-metal label are less conspicuous in the garden than the wooden label, and any kind of conspicuous label is bad. At Kew they now use a lead label of their own stamping, so that should many labels get out of use, as is the case in large collections, it is easy to melt them down and use the metal again for trees and enduring plants of all kinds.

CHAPTER XXXVII.

MY FLOWER GARDEN.

THE Editor of *Country Life* took a fancy to have a plan of my garden, and I willingly agreed, but now I desire to say a few words about plans and the harm they have done. Plans should be made on the ground to fit the place, and not the place made to suit some plan out of a book. Infinite harm has been done to the good art of gardening by the copying of old plans by designers without sympathy or knowledge of the art itself. Books are full of these plans, and any clerk can copy them and suggest them for all sorts of unfitting situations. In this case I thought of nothing but the ground itself, its relation to the house, and what I wanted to grow in it.

When I had a garden of my own to make, I meant it to contain the greatest number of favourite plants in the simplest way. I threw the ground into simple beds, suiting the space for convenience of working and planting, not losing an inch more than was necessary for walks. I did what, so far as we have any evidence to tell us, the Assyrian king and the mediæval chatelaine did—that is to say, I cut my limited garden space into simple beds. No plan of any kind was used nor any suggestion sought from any garden, the question being decided in relation to the space. Any talk about styles in relation to such a thing is absurd. Having made my garden, one day a young lady who had been reading one of those mystifying books about formalities and informalities came in, and, instead of warming her eyes at my Roses and Carnations, said, "Oh, you, too, have a formal garden!" Just imagine what Nebuchadnezzar or the mediæval Lady in their small patches of gardens would think of any silly person who made such a remark instead of looking at the flowers!

Having cut the space up into the simple plan shown, the next question was to make the walks. For these we used Croydon gravel, but the best we could get here was unsatisfactory. In a real flower garden there must be work to do at midsummer as well as in January, and therefore the gravel walk is a serious hindrance if one has gardening to do all the year round. I made up my mind, therefore, to pave the walks as shown in the plan, using old half-worn

London York stone pavings for this purpose, which at that time were often used in making the bottoms of roads, and not of much value. With these, work all the year round is pleasant, as sand, manure, plants or anything else may be spread about on the walks without adding to the labour or causing any unpleasantness. Where the whole flower garden is set out in a week as in bedding-out this would not matter so much; but a real flower garden, which is a thing of varied life, cannot be done in that way. The stones, when in irregular pieces, are sometimes set at random, and they are set in sand only, no cement or mortar being used.

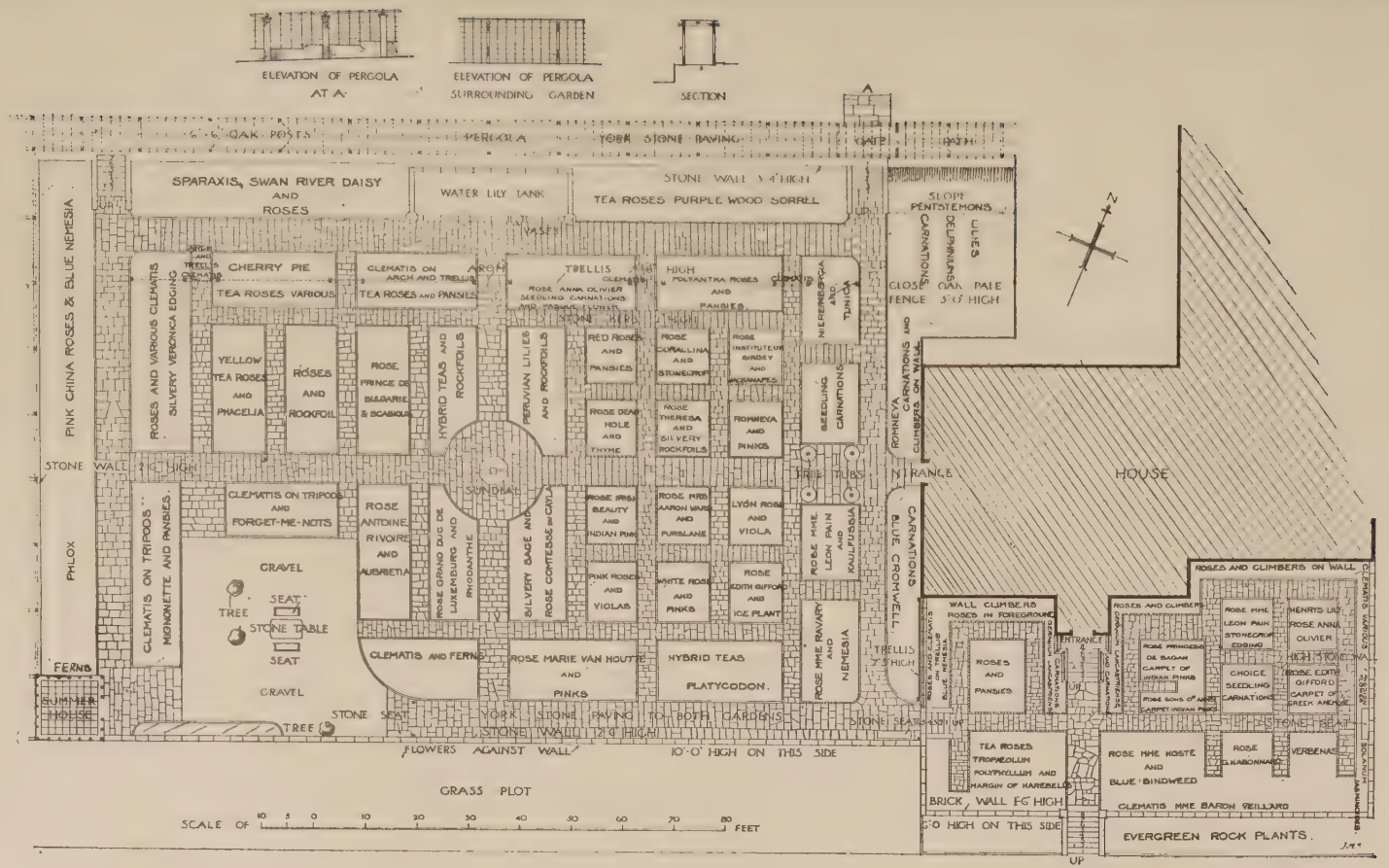
Edgings.

Then came the question of edgings. These in most gardens are a nuisance, and a serious and constant source of labour which can be very often ill-spared. Imagine the labour of keeping up a large garden with Box or other live edgings, harbouring insects and doing other harm. So we had stone edgings made from the same old London flagstones, broken up into handy pieces about 10 inches deep. These look well at all seasons and make a lasting edging, so that the gardeners have time to think of getting beautiful results instead of being bothered with needless labours. Otherwise the plan speaks for itself. In planting we not only seek to get variety, but also some difference in the height of things, and thereby obtain a varied surface and not a flat hard one such as is commonly sought.

Permanent planting.

Another point gained was that we could devote the beds to permanent planting; we have not to tear up the beds every autumn to plant spring flowers, as is commonly done in the gardens about London and Paris. The spring flowers abound so much in our lawns and woods, and beyond a few pretty edgings of Aubrietia, nothing else was done to disturb the beds meant for summer flowers. We can leave our Tea Roses and Carnations alone all the winter, and prepare for the summer garden only. Many fine things in the flower garden will not bear an annual or biennial disturbance, and therefore it is essential to have beds that we can plant with some degree of permanence. When the beds get tired of their contents, we have only to change the plants, but it is a great comfort to have beds which one can leave alone for several years, instead of having the useless labour of disturbing the ground twice a year.

It will be seen that these two flower gardens on slightly different levels are in intimate relation to the house. The old hall door opens into the smaller garden, and the west garden door into the larger. The garden is, in fact, as it should always be—a larger living-room. The varieties of situation are so many that it is not always possible to secure this; but it is by far the best way to have the real flower



The flower garden plan at Gravetye.

garden, where all our precious flowers are, in close relation to the house, so that we can enjoy and see and gather our flowers in the most direct way. The stone paths enable us to do this in all weathers; going for half a mile to get to the flower garden is not the right way. The wild garden is right in that way, but for the choice flowers that need attention and that charm us most, the flower garden should be within easy reach and in the best and sunniest spot.

The Position of the Flower Garden in relation to the House.

In olden times, so far as any evidence remains to us from pictures, prints, tapestry, etc., the place for the flower garden was quite near the house; and that is the place for it now. In the best conditions, it should be like an extension of the house—a larger flower room. The Scottish way of going half a mile to the kitchen garden to find the flower garden there, is not the best. There is no reason why there should not be mixed borders in the kitchen garden, but the real flower garden, varied and beautiful as it ought to be, should be within easy access of the sitting-rooms. In all artistic things formulas are dangerous, and the best way is to study the site, and, in a wide sense, the more varied the better, even as regards position. Always the south and warm sides of the house should be taken advantage of, and the cold side reserved for the entrance, and usually it should be cut off from the warmer, or garden, sides.

Sometimes the discovery of a vein of fine soil away from the house may justify the making of a garden there, in the same way as the late Sir Henry Yorke made a wood garden in Buckinghamshire. Having found a fine deposit of good peat, he made a very beautiful shrub and flower garden in it. We are in a time of doubt about this question, many people, tired of bedding-out, have turfed up their gardens, so that we often see what ought to be a flower garden turfed over. It is the ugliness, cost, and wholly inartistic result of bedding-out that tired people of it, and in many cases it would be well to go back to the old idea of the flower garden near the house.

The Rose garden.

A great mistake has been made in the past in placing the Rose garden away from the house. This was often done and told in every book. The coming of the China Roses of longer bloom, has altered the conditions as regards the Rose garden, and the best Roses should be in the flower garden, not by themselves only, but combined with all the other beautiful things that one cares for in a very choice flower

garden. When we have to make our Rose and flower garden together, which is the right way, that demands more thought for the position and the shape and the formation of the ground. In old houses there are generally open and more or less square places round the house and near it, which offer good situations for the flower garden. The walls that surround such places do not prevent us from following the picturesque way of gardening. There is not the slightest foundation for this plea, because nothing can be more set in its surroundings than the cottage or the small town garden, which often surprises us with its picturesque and true effects.

The lawn garden.

Take the lawn-side, where the ground slopes gently away from the house, it may be, towards a river; one of the best of gardens is one on the lawn, with a background of trees and shrubs sometimes running in and out of the margins of the lawn.

Often people are found bold enough to put their houses in all sorts of situations—on bluffs, near rocks, and on river banks, which may limit their garden in a sense, but give other, and, perhaps, more delightful, opportunities.

Sometimes about country houses there happens a square garden made at first as a kitchen or front garden, which is occasionally turned into a flower garden, often with excellent effect. The walls and the shelter and the drapery of climbers help. I think I have had more pleasure from the little square garden at Warley, full of hardy flowers, both in beds and borders, than ever I had in any garden. In such situations one can get as far away from convention as one likes. Another very pretty site of a flower garden is an old orchard. The trees, the light and shade, and the form make it enchanting, as compared with the fully exposed garden. In some of these orchard gardens, the soil being very good and rich, the hardy flowers grow very finely indeed — I mean as regards the handsomer kinds of hardy flowers.

CHAPTER XXXVIII.

DESIGN IN PLANTING.

WHO is to help? I believe the best results can only be got by the owner who knows and loves his ground. The greatest evil is the stereotyped plan, the results of which are evident on all sides. But the man must love the work and know one tree from the other, and feel that his pictures can only come from constant thought as to the ground itself. Lessons? Yes, from Nature mainly. A few days in one of the side valleys in the Tyrol or any beautiful mountain land will tell us more than many books, also pictures of the great landscape painters like Corot, Daubigny, Constable, and R. Wilson. The breadth, air, forms, foreground, and values that interest painters, the atmosphere of Corot, skies of Diaz, water of Daubigny, and Nature's trees, landscape, and atmosphere should teach us much. It is ours to make such use of them as will give us better pictures than ever were painted.

Design in planting.

This must be studied in the way of the good leader of soldiers and there is also the quality of the soil to be thought of, as soil useless for rich cultivation may give us fine trees. With hardy trees in the landscape, views, air, and distances also must be studied, not only in the place but from it to the neighbourhood.

The lie of the ground.

But how are we to know a landscape gardener? By this sign among others—that he will study the ground first and bring no plan in his pocket. Office plans are poor substitutes for the thing itself, but the custom of plans on paper is so fixed that it is not easy to get this truth accepted. There can be no true work in landscape save by one who knows trees by heart, and there is no royal road to that knowledge save by life study.

The relationships of nurserymen to garden design is a delicate one. A nurseryman's business is a wholly different one, and an honourable one, and if he does his own work well he has not the time to act as a designer of gardens. And in his case where is the control which should be exercised in all expensive work?

Nurserymen and garden design.

The garden designer should be free to go anywhere for his trees and plants. No one nursery has half the plants or trees he may require. He should not accept a fee from any tradesman and

should be paid only by his employer, whilst free to reject all goods supplied which he does not think as specified, just as the trustworthy architect rejects all inferior building material. Professional control is as essential in this as in any other work, and happy is the owner who himself takes a living interest in trees and landscape views, as he will save himself from stereotyped designs and bad planting. Some trees have historical associations, form and habits, likes and dislikes, which should be known to one hoping to get from their use any artistic result.

Breadth and repose.

The most evident mistake made in design of landscape work is the want of repose or breadth seen in so many parks and pleasure grounds. In the Home Counties one can scarcely see a piece of modern park land without the trees being in rings and in dots here and there spoiling all the breadth and simplicity of the scene. Such planting spoils landscape effect, does no good to the trees, and the dots are too small for shelter. The best way by far is to keep such green spaces open and plant ground that is no good for Arable. Sometimes a single Pine spoils the middle of a lawn or an oak tree the middle of a ploughed field. The lawn-like beauty of park or garden is the most precious thing we have for giving us air, sky, and space, and grouping and massing is the right way.

Rampant evergreens.

The planting without thought of evergreens is a common evil in British gardens. Evergreens are often planted where people do not see what they may become after years of growth. Important views are shut out by coarse evergreens, and even the house itself may be hidden by their growth.

In France it has been a practice to mar any grace of public squares and gardens by a display of the efforts of the sculptor; but the French begin to see this mistake, and to cry out against it. It is now proposed to remove these statues into one great statue cemetery, where those who admire them might worship.

Things destructive of repose.

Close to Hyde Park Corner there is a sort of fountain out of place, which spoils a little lawn. Large memorial confectionery groups ought not to be allowed to break up the spaces in the parks. Lately, I am told, the fantastic idea of a playwright has been embodied in stone in Kensington Gardens. If each succeeding decade is to see outrages of that sort committed, what will eventually become of the repose and quiet grace of parks?

An effective way of destroying repose in a public garden is the caging of animals there. This leads to ugly shanties and pathways or cleaning, feeding, and various purposes that need not be named.

In the garden itself certain malformed trees are used by designers of architectural turn to give points—the Irish Yew, close-growing Juniper, and various hideous "sports" of the Western Arbor-Vitæ. These are often used from the fatuous idea that they are old and right in the old English garden—the fact being that they are all modern deformities.

It should be borne in mind that the garden is but a patch in many a country place. It is only when we leave it we begin to see the real opportunity for landscape pictures in field, park, or woodland. There never was so much teaching of art in academic schools in every big town or city and professors and books in abundance, and yet there never was so much bad art. This is the common opinion of good judges in Paris and London. In Lord Redesdale's book there is a passage which has a bearing on this :—

Landscape design an art.

> "I remember how once, when a lady consulted Lord Leighton about her boy, who showed a great talent for painting, his answer was : 'Let him have the education of a gentleman in the first place ; then, if he should still have an inclination for art, let him specialise.'"

There is evidence to show that the way advised by Lord Leighton is not the right way. Excellence in art is not to be had without early devotion to the work, and the education in colleges until a man is well over twenty precludes any full early training in art.

If we look at the history of our own great landscape painters we find that David Cox was the son of a blacksmith, and he was an artist with a true eye for the beautiful in nature. Constable was a miller's son, and began his studies with a painter and glazier friend in the fields—a much better place to study art than any academy. Turner was the son of a barber, but even in Maiden-lane a genius arose. Old Crome began life as a doctor's errand boy. Carolus Duran, whose portrait of Pasteur—a masterpiece—was seen in London some years ago, told me he was at work in the Academy at Lille at eight years of age.

By far the best landscape art in England arose from conditions different from those laid down by Lord Leighton, whose own work does not justify his teaching. A picture by one of the old Dutch painters who, as boys, were apprenticed to their craft, was worth all he ever did.

This may seem apart from garden design, but it really is not so, because the problems that confront the landscape planter are the same as those which the landscape painter has to deal with, viz., beauty, repose, breadth, and air. The man who uses trees instead of pigments has a noble task.

CHAPTER XXXIX.

THE ARCHITECT IN THE GARDEN.

THERE is no reason why a student of the noblest and most essential of the arts architecture should trouble his head as to the hundred and one things a good gardener has to think of.

Architects as such have no knowledge of our garden flora, and for ages gardens were disfigured owing to their endeavours to conform trees to the lines of buildings.

We see something of the work of the architect as a gardener in front of Buckingham Palace; in first of all meaningless stone piers and then a flower garden out of place, planted with one flower—the scarlet Pelargonium. The spot was wholly unfit for a flower garden. There are many flower gardens in the near parks. It was planned to cut up the little park near by and make a spectacular display of architecture out of place, but, fortunately, some men in the "House" heard of it and knocked the scheme on the head.

The worst outrage on Nature and on Art is the destruction of the forms of our noblest trees. The old gardens many of which still exist, were in the hands of architects who clearly did not know a tree from a shrub, and who planted forest trees in positions where their beauty and stature could not develop, and this led to their distortion through ceaseless clipping. In Vienna may be seen men perched on ladders 50 feet high endeavouring to clip Hornbeam and Beech into hideous shapes. Many English and Scottish gardens are disfigured by our finest evergreen native tree, the Yew, being carved into ugly shapes. With our present wealth of trees and shrubs there is not the slightest reason for putting a forest tree into the flower garden, but every reason against the practice.

Loss of tree form.

It would be easy to fill a comic journal with the ugly monstrosities of the "Topiarist." Northiam and Levens are among the many gardens disfigured by these distortions of misplaced forest trees. Topiary work, from beginning to end, is inherited from the Italians and the practice of clipping trees to conform to the lines of building. Many places are spoilt for the artist by the hard black lines of Yew, and

Topiary work.

not a naturally grown Yew to be seen. It is easy to get good dividing lines without disfiguring trees; lines that call for clipping mean the destruction of all form and grace. The labour and time spent in deforming trees are sad to think of and a waste to make the earth hideous. We may see examples of it on all sides here, as well as in the Royal gardens of the great cities of Europe.

Statues of value as works of art should in our country be under cover. The figures of animals, too, are out of place in the garden.

Statues in gardens.

Redundant ornaments of any kind, such as vases, often spoil it. In a recent book on garden ornament I see a milestone figuring as an ornament in a garden in Ireland. The use of marble is objectionable for another reason. Sir A. Geikie, in a letter to *The Times*, 11th June 1919, wrote:—

"On no account should white statuary marble be employed in any structure in the open air. Even the purest air of the country contains carbonic acid, which, dissolved in falling rain, acts on the stone as a solvent. In our rainy climate only a few years suffice to remove the polish from the surface, which gradually becomes rough and granular, so that one can wipe off the crumbling powder with the hand. In the air of large towns other acids, produced from the burning of coal, are added to the atmosphere and increase the solvent action of the rain."

Excessive use of other stone is also a mistake, as we may see at Drayton Manor, Witley Court, and many other British gardens, also abroad, as at Potsdam, and in the Italian gardens, where statues of inferior merit mar any good effect that one might look for in a true garden.

The terrace is in place only when it is need of the ground. To make holes in the earth is to spoil the ground and a wasteful error.

Terracing level ground.

I remember once in Ireland, near a beautiful bay, seeing a huge formless mound of some thousands of tons of earth, and learnt that it was the earth that had been dug up to make a terrace which was quite needless in the situation. Many a fine foreground has been spoiled by the terrace. If terracing is really needed, the stone-work should certainly be left to the architect.

Water should reflect light and have some relation to natural conditions, as the lie of ground, but very often in gardens it is seen in petty stone basins near the house. One in Surrey is cut up by a little canal 18 inches wide. Trivial fountain basins are a mistake, and bring the mosquito. The recent addition to the garden flora of many noble hardy Water Lilies is some need for water;

The misuse of water.

but for various good reasons artificial water is best as far away from the house as the ground will allow.

Pergolas.

The pergola is the best way of showing the full beauty of many climbing plants, but, unless with some definite motive, such as shade to a walk or a ready way from one part of a place to another, it may be a wasteful mistake, especially if covered over with the mechanical trellising which is common abroad. The best kind of trellising is that made from the split Oak of our own country. The moment the pergola is designed for theatrical effect or from the builder's point of view its beauty is lost. Many well-covered pergolas in Italy and Southern France are made of the simplest material at hand, and are better so. The common British way of using "rustic" wood is a mistake. Give a pergola sound legs to stand on and the rest is easy.

Parterre gardening.

After the disfigurement of trees the next most fatal defect in modern gardens is the stereotyped flower garden. There was a time when the architect impatient of the gardener's labours, attempted by means of coloured gravel, clipped trees, and various contrivances, to get a settled and permanent effect. That meant death in the flower garden, as may be seen in many old books where gardens were traceries made like panels in the house. There was no pleasure in this sort of garden, and people eventually tired of it and often put down Grass instead, as we may see about some of our finest old houses. In a book lately published on garden ornament, we may see a number of such pattern gardens with as much thought of life as in designs for wall-papers or carpets. One might as well attempt to stereotype the clouds of heaven as get a stamped arrangement of the flower garden. The flower garden should abound in life and beauty of form all through the summer and be the scene of the labours of men every fine day in the winter and spring. How stupid then to attempt to stamp all life and change out of a garden!

Hardy trees in tubs.

Occasionally one sees hardy trees put in tubs at heavy expense and labour. Our native trees stand in no need of tubs. In Wrest Park I once saw wooden boxes built round hardy trees, the huge boxes covered with Moss. This was intended to carry out the idea of an Italian garden in a stupid way. In some old French gardens the culture of trees in large tubs is still carried on. I have seen six fine horses dragging a big tub to its winter quarters. It seems this tub culture is to be carried on at Hampton Court, presumably to give an antique air to the flower garden. With our present stores of flowering plants and shrubs, it is a poor flower garden that wants help of any sort from the tub.

Another reason for architects keeping to their own essential work is the fact that the building art is in a state of decadence in our day.

The architect's true work.

A much-trusted architect deplored to me the state of building in all parts of the country, saying that as the years go on the work becomes steadily worse. And this in spite of the number of journals and professors, just as in the art of painting, there never was so much teaching and so much bad painting. One may go along miles of road and never see a well-built cottage; but, instead, every variety of bizarre colour and flimsy structure. London is hideous with brick, and all the beautiful garden land of the home counties is bespattered with villas (not Italian) ugly in wall and roof.

Evil Effect of Books on Italian Gardens.

Heavy clay loaded books on Italian gardens are now often issued; the photograph and the clayed paper of our day make these easier to print than in old days. When we look into them we find nothing about gardens—much stone-work out of place, extravagance in decoration; the parterre gardens not the best for gardeners to plant. The old Italians, content with these things, had no ideas of a true garden—but on the contrary, left Nature out of the scene. About their beautiful Northern lakes, the idea of the garden as a place for statues and stone-work out of place has given way before the garden flora of the northen world, and we may see these gardens full of life and beauty. In English gardens, where any copy of the Italian idea was attempted the result was disastrous. Any lover of gardens who comes under the influence of such books had better see the meaning of planting in our islands by studying examples of the natural and artistic ways. Also of good landscape painting—not common, but in the work of the great masters, English or French, full of instruction. It may be well to see examples of the sham Italian garden, and the misuse of sculpture with our gardens. In France the sculptors had gone so far in destroying the charm and repose of the paths that the critics began to cry out in their journals and so stopped the outrage; but how get rid of the harm done? What may be learned in Italy is the beautiful landscape—A lovely mountain flora, thick in vast pastures on their flanks and summits even; a lovely Alpine flora; valleys flowing down from the Alps; everywhere many beautiful scenes; the cultivated fields, olive gardens; vineyards.

Great cities, rich in museums, telling us of the ancient life of the land, old, mediæval and modern, of the most fascinating of countries.

Cities like Paris and London offer so many worthy sites for

statues of value in and around public buildings, open squares, and boulevards that there was no excuse for them in the parks. But there has been signs of their presence so much that art critics in the Paris *Figaro* rightly denounced the practice. In the Park Monceau, a charming retreat in Paris, it was too evident, and among them a monument to Maupassant, the dirtiest writer who ever soiled the literature of France.

Statues in public or other gardens.

In Hyde Park an outrage in the name of sculpture is perpetrated by a Mr Epstein. Of it the Hon. John Collier, a distinguished artist of our day, said at a dinner of the Artists' Club :—

> "Here you have a female figure purporting to represent an exquisitely beautiful girl. What do we get? I have no hesitation in calling it a bestial figure, horribly misshapen, with enormous claw-like hands and withered pendulous breasts, an enormous and distorted pelvis, and head and face of a microcephalous idiot. Nearly all the critics, and high-brows who are not critics, go into ecstasies over the monstrous perversion of the female form.
>
> "What distressed him most about the business was that Mr Bernard Shaw had expressed his approval of the monstrosity. Mr Bernard Shaw was compelled by his nature to contradict any opinion which was held by the public, though this opinion might be quite right."

As to private gardens where one seeks the quiet of the garden of which Marvell speaks so well one sees cement showing its ugly face. In one home county there may be seen an avenue of grotesque life-size figures, certainly not the work of any garden artist, and in another a maze with the figures of the natives of our isles—English, Scottish, Welsh and Irish—done in mean metal and as garden ornaments.

CHAPTER XL.

TOPIARIAN FOLLIES.

In recent years an attempt has been made to make more popular and harmful this outrage on natural form. I read the following in best type in the staid columns of the *Observer* under the heading "Tree-Sculpture":—

> One may see trees—mostly Yew and Box—whose foliage ascends in spirals round their stems, like garlands twisted round so many Maypoles; trees cut into the shape of pillars and surmounted with leafy balls one on top of the other; trees in the forms of birds standing, sitting, and flying; trees shaped like pyramids, and even trees representing jugs and basins.

False forms of tree here, but not a word of the Yew in its natural form, so good that it deserves the name of our native Cedar. This true form may not be seen in many gardens, owing to the misuse of the tree usually clipped. To see the tree in its true beauty we must seek it along the North Downs by the Pilgrims' Way or in a country graveyard. Then in the *Times*:—

> Birds, without base, take about ten or twelve years to grow, and dogs from twelve to twenty years, while other subjects, requiring anything from ten to ninety years, include peacocks, serpents, and serpentine columns, tables, armchairs, sitting hens, geese and ducks, dogs (with and without kennels), ships, horses, and pigs. One man in the North had his crest, a pelican feeding her young, grown in Yew.

The fact is, a Dutch nurseryman possessing a stock of these distortions gave a dinner to the reporters of the daily and other journals; these took the man at his own estimate, and so we get many Press puffs of the most impudent outrage ever perpetrated on natural beauty in our gardens. The infliction has come to our gardens from Dutch William mainly. From his day date most of the examples of tree spoliation in our land. Not only does it mean the ruin of tree form, but injury to the gardens too. Ask the gardener at Northiam, Elvaston, Levens, or in any place where this parody of an art is carried out what they think of its effect on the growth of flower and shrub and you may hear the truth that it is very difficult to grow flower or shrub near the misplaced trees.

Ignoble labour, too, to the men who have to carry it out. The work of disfiguring was bad at all times, now deplorable when the flowering trees and shrubs from China and Japan are coming to us. Good taste is a more likely comrade of humility, and goes with a childlike reverence for the work of the Creator, as shown to us in the clouds, the mountains, the waves, the forests, the flowers, and in the flight of birds.

Waste of labour.

Much topiary work is inherited from the practice of clipping trees to conform to the lines of building. Many places are spoilt for the artist by the hard lines of clipped Yew, and not a naturally-grown Yew to be seen. It is easy to get good dividing lines without disfiguring trees; lines that call for clipping mean the destruction of all form.

Topiarian effects appeal only to those blind to the grace and movement of the free, natural form. To artists of all lands we may, if need be, appeal. France, in its home landscapes, has for ages been disgraced by the Topiarian practice, and here is what one of her gifted writers, Theophile Gautier, says:—

Effect on the artist.

Les arbres du parc de Versailles portent des boucles et des frisures comme les courtisans; les poèmes sont tracés au cordeau comme les allées. Partout la régularité froide est substituée au charmant désordre de la vie; et qui produit une impression à peu près pareille à celle que vous donnent les jardins de Le Nôtre ou de la Quintinie; partout du marbre, du bronze, des Neptunes, des tritons, des nymphes, des rocailles, des bassins, des grottes, des colonnades, des ifs en quenouille, des buis en pot-au-feu.

In much of Northern Europe the evergreen trees that grace our land in winter are not to be seen save in a tub in a hall or glass-house. Holly, Ivy, true Laurel are killed before the winter frost. The true Laurel of the Greeks is, in our southern counties and near our coast, as happy in the open air as by a stream in Greece. To supply the need in the frozen North a large business with evergreens in tubs has arisen in Holland and Belgium. The trees are grown in tubs; miles of them may be seen in nurseries.

Origin of the practice.

A great danger in our isles arises from the constant practice of planting the Yew in gardens and by approaches, and it is sad to read this note in a daily paper:—

The deadly Yew.

More than fifty sheep out of a large flock pastured in West Lothian died from the effects of eating leaves of Yew trees.

The tree is deadly for stock in all states, and if a record could be made of its destructiveness it would amaze. The deaths of many

animals are wrongly attributed to other causes. Worse still, the ignorance of the pretended landscape gardeners, who scatter the Yew liberally about, even near the approaches to the house, where the horses can scarcely miss it.

I must write to tell you of our sad experience of the fatal effects of Yew clippings. About the beginning of the year some Yew trees had to be cut and some (not a large quantity) of the clippings were thrown on a rubbish heap in what we call the park. No one seems to have known the danger. A few weeks after, our tenant turned seven bullocks into the park, and four of the seven died. We have had to pay compensation for the act of our servant. The man did not know, and even a nursery gardener whom I had to see in connection with the matter was ignorant of the danger. You cannot emphasise too strongly the necessity of keeping Yew, alive or dead, out of the reach of stock and of horses, which I am told are even more easily killed.—A. F. KIRKPATRICK, Deanery, Ely.

Even the arrival court to a country house is often bordered by a line of Yew near for any straying animal to poison itself. In many cases where the hard line of the Yew hedge is used it is to get a less artistic result than could be got in other ways by low walls, fences, and evergreens like Holly and Box, guileless of poisoning.

Anything more inartistic or wrong as to planting, than the clipping of trees, could not be conceived ; all the more so when practised upon shrubs like the Holly, the beauty of which depends on the growth being free. The graceful toss and growth, and the play of light and shade, and, last of all, the finest effect of our winters, the berries of the Holly. Unhappily, when people see this clipping practised in public gardens they are very apt to imitate it in their own gardens, and thus acres of beautiful evergreens in the suburbs of London and every city in Britain are disfigured in the same way. The common idea that the hard line of clipped Yew hedge is the best background for garden effects is wrong, and may well be got out of the heads of designers of gardens.

BEAUTY AND SHELTER FROM EVERGREEN FOREST TREES.

THE following from the *Field*, 13th August 1925, tells of my effort here to soften the winter aspect of our woods, by planting the evergreen forest trees of the Northern world, many of which are as hardy as our native trees and thrive as well in our clime as on the mountains of California, N.W. America, and also of the mountains of Europe and North Africa.

"Few are aware of the wealth of beauty to be obtained from the planting of some of the noble evergreen forest trees of the north temperate regions. Not only is there beauty of form in the individual trees, but when they are boldly massed they give a warmth

and shelter during the bleak winter months that one looks for in vain in a summer-leafing forest. Perhaps one of the best examples to show how to make a beautiful evergreen forest in the course of thirty years is to be seen near East Grinstead, at Gravetye, a little more than 30 miles from London. When he first went to Gravetye there were no noble North American evergreen forest trees on the estate, nor planted in the forest way. Nor was there any advantage taken of such trees for their value as shelter belts, or for their great natural beauty. The iron-bound clumps that occur in so many parks were no protection to man or beast, and the dotting about here and there of a few specimens were of little landscape value. Due north of the old Elizabethan mansion were some acres of open land bearing crops of oats that were not worth cutting; so in their place were planted Pine trees of approved hardiness. Only the wild or natural species were used; all fancy and variegated forms were excluded, as these never make good forest trees.

"The little trees were two to three years of age from seed, once transplanted. There was no trenching or other preparation of the ground, and it would have been a great mistake to have used older plants for the purpose. The little trees soon got their heads well up, and being closely planted in the forest way, they soon smothered the weeds and grass. For 'nurses' were used young Larch: also the common Furze or Gorse, sown when the trees were young, was a gain in nourishing one plantation of Corsican Pines to such an extent that the young Pines soon got the mastery of the Furze.

"There was only one failure among the Pines, and that was the white Pine of N.E. America (Pinus strobus), which could not endure in the cold clay. It was not the climate that was at fault, as this tree does as well on the shaly hills of Wales as it does in its own country. The finest Pine of Europe is the Corsican (P. Laricio). It leads the way for rapid and erect growth. Many of the Californian conifers have also done well at Gravetye, and the Sitka Spruce (Picea sitchensis) has been a great success, and now forms a vigorous grove. The Riga Fir, a good form of the Scots Fir, and the giant Thuya plicata are amongst the most vigorous; while the western Hemlock (Tsuga Albertiana) has grown into lovely and stately trees, making a fine shelter on the higher ground. The Algerian silver Fir (Abies numidica), which is found among the Cedars on Mount Babor, grows well; and the Himalayan blue Pine (P. excelsa) has been happy for thirty years on a bank of sandstone rock. The Swiss or Arolla Pine (P. cembra), although a slow grower, thrives on the cooler soils, and is at all seasons a good and effective shelter. For poor land and a northern aspect the white Spruce (Picea alba)

Kinds Planted.

thrives apace and makes a good shelter tree. The Austrian Pine does much better massed in the forest way than dotted on grass. It is also a valuable soil improver, as it sheds its leaves or 'needles' in great profusion. The Colorado Fir (Abies concolor) grows well when put in the soil without preparation: while the valley Spruce (Abies grandis) from the same region charms by its grace and vigour in the poor soil of the wood.

"Our native Yew was sparse in the woods. It has been cut out in hedgerows and carefully trimmed up above the reach of any straying horse or cow. Any young Yew trees found in the place were put together in a group by themselves in a wood, and were carefully trimmed up out of harm's way, the trimmings being burnt on the spot. In its natural form the Yew is a beautiful tree and makes a fine shelter for game.

"Single trees are not alluded to in these notes, but only trees planted in large numbers to enable one to judge of their value for the forest or woodland. In all, over 70 acres of evergreen forest trees have proved their merit during the past thirty years, and what were at one time bare in winter are now a forest land filled with Pines, Firs and Spruces, which have flourished without the aid of trenching, digging or manuring. The planter rightly held that if the trees could not live and thrive in the natural soil they would not be of general use. Besides which a tree that would flourish without help, was the tree most suitable for the district.

"The results of the planting is that fine shelters have been made against prevailing winds. To go into a grove of Corsican Pines in a wild 'north-easter' is now like going into another clime, so noticeable are the warmth and shelter. In addition, one must consider the improvement in the landscape effect by the masses of evergreen forest trees, increasing by contrast the beauty of our native Oaks, Ashes or Beeches.

"To protect the Lebanon Cedar from rabbits, the way was found to bind a big faggot around the base of each tree, and this kept it safe for years. In regard to the Cedar of Lebanon, the planter thinks that it would be much better grouped, so that it might enjoy shelter and nourishment from all the rain that falls, and that Larch makes a good nurse until such time as the young Cedars become established. Grown singly, the Cedar gets no shelter from its fellows, and often little water, as the grass keeps this for its own needs."

THE

ENGLISH FLOWER GARDEN

AND HOME GROUNDS

PART II

CONTAINING THE FLOWERS, TREES, FLOWERING SHRUBS, EVERGREENS, AND HARDY FERNS FOR THE OPEN-AIR FLOWER GARDEN IN THE BRITISH ISLES, WITH THEIR CULTIVATION AND THE POSITIONS MOST SUITABLE FOR THEM IN GARDENS

ABELIA.—Beautiful shrubs, of the Honeysuckle order, little grown in our country, thriving in warm districts. They form a small group from the hills of China and Japan, the uplands of India, and Mexico. In mild districts, with light soil, in sheltered corners or on warm walls, they do best. Their flowers, in drooping clusters, last long, and the coloured sepals retain their beauty far into the autumn. Layers or cuttings.

A. CHINENSIS (Rock A.).—A pretty shrub, usually of dense growth, 3 to 5 feet high. The hardiest kind to do well needs a warm, light soil and a sheltered spot. The flowers, about an inch long, are in clusters of a pale blush colour, fragrant. Syn. *A. rupestris*.

A. FLORIBUNDA (Mexican A.).—A beautiful shrub, but save in warm, southern and western parts must be grown under glass. The flowers come in spring as drooping clusters from every joint, rose or rosy-purple, about 2 inches long, and hang for many weeks upon the plant. Mexico.

A. GRANDIFLORA (Hybrid A.).—Said to be a hybrid, and is handsome but not quite hardy, even in the south. Best on a low, sunny wall, on which it flowers well, and for a long period.

A. SERRATA (Dwarf A.).—A dwarf evergreen bush upon dry and sunny hillsides in China and Japan. It is smaller in all its parts than the other Chinese species, growing little more than 3 feet high, with solitary pale red flowers, large and sweet. Spring.

A. SPATHULATA (Twin-flowering A.).—An elegant evergreen shrub. Flowers in April; white, marked with yellow in the tube; in pairs from every joint, and about an inch long.

A. TRIFLORA (Indian A.).—A lovely shrub, best on a wall. The flowers, coming in threes at the end of summer, are cream or pale yellow flushed with pink. India.

A. PHÆMANNI is a newer plant and very promising with rosy flowers.

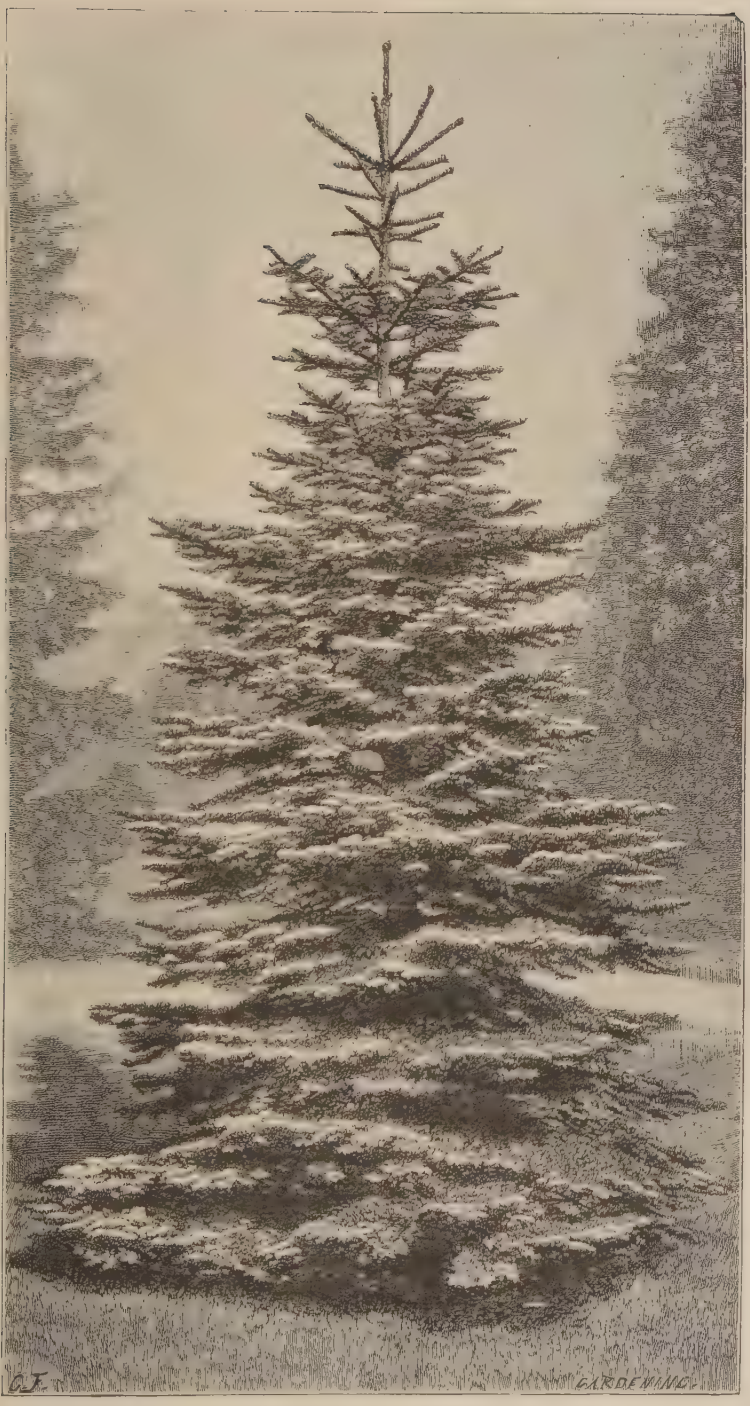
ABIES (*Silver Fir*).—Beautiful evergreen trees of northern and mountainous regions, many hardy in our country. Some of the Indian and Japanese Silver Firs in our country suffer by starting too early in open winters and harsh springs. In their own frost-bound mountain lands the young shoots start when all danger is past. A remedy for this is the selection of exposed positions which will not encourage early growth, and also not making the soil so rich as is the rule. As with many of the conifers, the usual way is to put them apart as "specimens," but that, from an artistic point of view, and that of their health, is not the best. Where there is room, they should be grouped.

There is confusion of names, owing to the American kinds having been sent over under various names. The following selection includes the best for our country so far as the trees are known. There are variegated sorts which are given names; they are useless to those who seek the natural dignity of the tree.

A. BALSAMEA (Balsam Fir).—A slender northern forest Fir rarely attaining a height of more than 80 feet, and much smaller in high Arctic regions. Hardy in our country. N. America.

A. BRACHYPHYLLA (Jesso Silver Fir).—A handsome and hardy tree, over 100 feet high, with bright green foliage and short leaves. The densely crowded leaves are very silvery underneath, and the effect of a healthy tree good. Japan.

A. BRACTEATA (Santa Lucia Fir).—A stately tree, often 150 feet high in its native country. The foliage is long and rather scattered, sharply pointed. It is injured in some districts by growing too early in the spring. N.W. America.



Abies magnifica (Castlewellan).

A. CEPHALONICA (Cephalonian Fir).—A vigorous Fir of about 60 feet high, hardy in this country in a variety of soils, best planted in a high position to prevent it starting into growth too early. Greece.

A. CILICICA (Mount Taurus Fir).—A graceful tree, 40 feet to 60 feet high, with slender branches. It grows freely, but is apt to be injured by spring frosts; the leaves are soft, and of a peculiar shade of green. Cilicia.

A. CONCOLOR (Hoary White Fir).—A whitish tree of medium height, with thick, grey bark. The flat leaves are about 2 inches long, and it has small pale yellow cones. It is hardy in Britain, and a rapid grower. Colorado.

A. FIRMA (Japanese Silver Fir).—A tree of sometimes 150 feet in height, with light brown bark and foliage of a glossy green. Hardy in Britain, and grows freely when established. It is a handsome tree with short branches and stiff habit. Japan.

A. FRASERI (Alleghany Fir).—Reaches 90 feet high in its own country, with smooth bark having resinous blisters. It is allied to the Balsam Fir, but has shorter and more oval cones, and leaves with silvery undersides. Virginia, N. Carolina, and Tennessee.

A. GRANDIS (Puget Sound Fir).—A stately tree 200 feet high, with dark green cones 2 to 3 inches long, and dark shining leaves, white below. Hardy in various parts of Britain; best in moist soils. N.W. America.

A. LASIOCARPA (Alpine Fir).—A beautiful spire-like tree 150 feet high, with white bark and very small cones, purple, 2 to 3 inches long, and red male flowers, the foliage gracefully curved. Alaska, B. Columbia.

A. LOWIANA (California White Fir).—A lovely tree, often 150 feet high, long leaves, and light green cones, turning yellow at maturity. Oregon to S. California.

A. MAGNIFICA (California Red Fir).—A stately mountain tree of 200 to 250 feet, with brown bark (red within), and very large light purple cones, 6 to 8 inches long. The foliage is dense on the lower branches, but thinner towards the top, of olive-green. N. California.

A. MARIESI (Maries' Silver Fir).—A tall, pyramidal tree with spreading branches and dark purple cones, 4 to 5 inches long. Japan.

A. NOBILIS (Columbia Fir).—A mountain tree, 200 to 300 feet high, with deep glaucous foliage and brown cones 5 to 7 inches long. Does not thrive in some soils; best in deep soil, and with abundant moisture. Oregon.

A. NORDMANNIANA (Crimean Fir).—A beautiful dark green tree, with rigid branches and dense dark green foliage and large cones. Caucasus and Crimea.

A. NUMIDICA (Mount Babor Fir).—A tree of medium height with bright green foliage. Hardy in this country. Mountains of N. Africa, growing with Cedars and Yew.

A. PECTINATA (Silver Fir).—A noble tree of the mountains of Central Europe. The first of the Silver Firs planted in Britain. When young it grows well in the shade of other trees, and it is an excellent tree to plant for shelter, as it will grow in the most exposed situations.

A. PINSAPO (Spanish Silver Fir).—A large Fir, with bright green prickly foliage, thriving in almost any soil and in chalky districts. Often suffers from too early a start in spring, and the usual method of planting as specimens in grass, the grass robbing the tree. Spain.

A. SACHALINENSIS (Saghalien Silver Fir).—A tall tree with greyish-brown bark, narrow leaves, and small cones. It is hardy, and of distinct and graceful habit. Japan and Saghalien.

A. VEITCHI (Veitch's Silver Fir).—A tall tree of over 100 feet. The bark is light grey, and the leaves a bright glossy green with silvery streaks, the cones being a purplish-brown. Japan.

A. WEBBIANA (Webb's Fir).—An Indian Fir, sometimes nearly 100 feet high, and one of the most distinct. The leaves are glossy green with silvery undersides, the cones large. A variety Pindrow is without the silver markings. Both suffer much from spring frosts. Himalayas.

As to the growth and placing of the Silver Firs, the usual way of dot planting is not the best. I prefer half a dozen kinds known to thrive in this country to many kinds set out in the lamp-post way. The trees should shelter and help each other, planting close at first, with "nurses" planted between, all to be thinned off in due time. Close planting does not imply that the trees are not to be allowed space for their stately growth as time goes on. Another gain from the natural grouping is that the trees cast off their branches as they grow up and show the noble stems. From seeds is the true way of increase.

ABRONIA (*Sand Verbena*).—Small Californian annuals or perennials of a trailing habit, with blossoms in dense Verbena-like clusters. *A. arenaria*, a honey-scented perennial, has trailing stems and dense clusters of lemon-coloured flowers; *A. umbellata*, also an annual with succulent trailing stems and clusters of rosy-purple, slightly fragrant flowers; *A. fragrans*, forming large branching tufts from 1¼ to 2 feet, and white flowers which expand late in the afternoon, and then exhale a deli-

cate vanilla-like perfume; *A. villosa* has violet flowers, and *A. Crux Mastœ*, with scented flowers. *A. arenaria* and *A. umbellata* should be planted in rather poor, light and dry soil, on open well-drained borders. The seeds often remain dormant for some time before vegetating; those of *A. umbellata* germinate readily. Abronias flower in summer and autumn, and to succeed with them it is best to plant in sunny warm spots in free loamy soil.

ABUTILON.—Plants mostly requiring greenhouse temperature in winter, but growing freely out of doors in summer, and a graceful aid in the flower garden in the southern counties. *A. Darwini* and its forms, as well as the varieties related to *A. striatum*, grow from 4 to 8 feet in height. They can be made bushy by stopping, and they flower better than if in pots. They are useful among the taller and more graceful plants for the flower garden, and are easily raised from seed and cuttings. *A. vitifolium* is a handsome plant in mild districts, and several sorts may be grown in the open air in gardens in warm sea-shore districts. New hybrid varieties are often raised.

ACACIA (*Tassel Tree*).—Beautiful shrubs and trees, thriving in warmer countries, but a few grown out of doors do well in parts of our country. *A. Julibrissin.*—By reducing this to a single stem and using young plants, or those cut down every year, one gets an erect stem covered with leaves as graceful as a Fern, and pretty amidst low-growing flowers. In Cornish and South Devon gardens various kinds thrive in the open air. *A. affinis* is the most common. In many cases *A. affinis* is grown as *A. dealbata*. *A. verticillata* flowers later in the spring. It reaches a height of 15 feet in a few years, growing in the form of a broad based cone, with its lower branches but a foot or so from the ground.

ACÆNA.—Alpine and rock plants of the Rose family. Though not pretty in flower, if we except the crimson spines that give a charm to the little New Zealand *A. microphylla*, these plants are useful as very dwarf carpets in the rock garden, and now and then, to cover dry parts of borders, among the most so being *argentea*, *millefolia*, *pulchella*, *ovalifolia*, and *sarmentosa*, all of free growth.

ACANTHOLIMON (*Prickly Thrift*).—Dwarf mountain plants of the Sea Lavender order, extending from the east of Greece to Thibet, and having their headquarters in Persia. The flowers are like those of Statice, the plants forming cushion-like tufts; the leaves rigid and spiny. They are dwarf evergreen rock garden and choice border plants. Cuttings taken off in late summer and kept in a cold frame during winter make good plants in two years, but by layering one gets earlier and larger plants. All are hardy, and prefer warm, sunny situations in sandy loam. There are only a few kinds in cultivation, such as *A. glumaceum*, *venustum*, and *androsaceum*. *A. Kotschyi* is handsome, with long spikes rising well above the leaves, and white flowers; *A. melananthum* has short, dense spikes, the limb of the calyx being bordered with dark violet or black; and there are other pretty species, not all in cultivation perhaps, which, so far as we know them, thrive best on the sunny rock garden, in light soil. Where large plants of the rare kinds exist, it is a good plan to work some cocoa-nut fibre and sand, in equal parts, into the tufts in early autumn, but before doing this some of the shoots should be gently torn so as to half sever them at a heel; water to settle the soil. Many of the growths thus treated will root by spring.

Acantholimon glumaceum.

ACANTHOPANAX. — *A. ricinifolium* is the most striking of the shrubby Araliads, hardy in our country. Curious and picturesque in form, these are not of proved garden value. Professor Rein, of the University of Bonn, mentions trees 90 feet high, with stem 9 to 12 feet in circumference in the forests of Yezo, the great northern island of Japan. *A. sessiliflorum* is a native of China and Japan. It has wrinkled, dark green leaves of three to five leaflets, the mid-ribs having a few scattered bristles. *A. spinosum.*—A shrub with leaves divided into segments. They are both hardy in sheltered positions. *A. palmatum atro-sanguineum,* with very rich crimson foliage, and *pinnatifidum,* in which the leaves are much divided, are the finest of the Japanese kinds. *A. Henryi* is a Chinese kind worth growing for its fruit effect in autumn. The plants should not be grafted.

ACANTHUS (*Bear's-breech*). — Stately perennials with fine foliage,

Acanthus.

mostly coming from the countries round the Mediterranean, and hardy. On rocky banks, borders of the bolder sort, and in almost any position among the more vigorous hardy plants they look well, and will thrive in partial shade, yet to flower well should have full sun. Acanthuses succeed best on warm, deep soil, though they will live in almost any. They are easily increased by division of the roots in winter, and may be raised from seed.

There are several hardy kinds :— *A. hispanicus, A. longifolius, A. mollis, A. m. latifolius* (*A. lusitanicus*), *A. niger,* and *A. spinosissimus.*

ACER (*Maple*).—Trees, mostly of northern regions, often of the highest value, some of the species breaking into a great number of varieties. Among the best are the Silver Maple (*A. eriocarpum*), a beautiful tree, though we get from it other forms which are not of much value. The Norway Maple (*A. platanoides*) has many varieties. The common Sycamore Maple (*A. pseudo-platanus*) has also varieties, though none of them better than the natural tree. It is doubtful if there is any finer tree than this when old. It is the best of forest trees to face the sea, as in Anglesey and many other windy places. Our Native Maple (*A. campestre*) is also a pretty tree, seldom planted in gardens. The Virginian (*A. rubrum*) is a beautiful tree, as is also the Sugar Maple (*A. saccharinum*) and the Colchic Maple (*A. lœtum*). The Japanese Maples are beautiful, but not quite robust, except in favoured districts. *A. Negundo* has given us the much over-valued, too variegated Maple common in gardens. *A. Ginnala* is a low tree whose leaves die off a rich red in colour. The N. American and European species are hardy as forest trees, and thrive in almost any soil, but the Southern American and Japanese kinds want warmer soils to thrive in our climate. A number of kinds have of recent years come to us from China and Japan and other northern regions, but as yet we have little evidence of their value in the home landscape. The best effects so far are from the northern forest kinds, like the Norway Maple, the Virginian Maple, and even the brown forms of the Sycamore Maple, which come freely from seed, and so may escape the mistaken labour of the grafter who does not look to the results of the practice on the life of the tree. The evil result of this is frequent in the varieties of the Japanese Maple, attractive in colour, the Japanese often grafting on other and more vigorous

kinds, and plants so increased are not worth planting. In such a noble family of trees, often fine in form and colour, the planting of variegated kinds is a mistake.

Among the less planted kinds are *carpinifolium, circinatum, Davidii, griseum, Heldreichii, insigne, Laetum, Lobellii, macrophyllum, Myaboyii nikœnse, opalus, saccharum,* and *Volzemi,* worthy of a place where there is space to spare.

ACHILLEA (*Milfoil, Yarrow*).—Hardy herbaceous and alpine plants spread through Northern Asia, S. Europe, and Asia Minor, varying in height from 2 inches to 4 feet, their flowers being pale lemon, yellow, and white, but rarely pink or rose. They thrive in most soils, and, with the exception of the dwarfer mountain species, increase rapidly. Some of the large kinds are fine plants for groups, as *A. Eupatorium.* The alpine kinds are for the rock garden, or margins of choice borders.

The best of the larger kinds are excellent for large groups in mixed borders, and also in shrubberies; among the best being *A. Eupatorium, A. Filipendula, A. millefolium roseum* (a rose-coloured variety of a native plant), and *A. Ptarmica* (the Sneezewort), the double variety being one of the best perennials.

The dwarfer species come in for groups for the rock garden or the margins of rock borders, and, occasionally, as edging plants, most of them growing freely and being easy of increase; but some of the higher alpine kinds are not very enduring in our open winters. The dwarf kinds are the most precious for the flower garden, and these are described by Mr E. H. Jenkins in *Gardening Illustrated*:—

A. ARGENTEA.—It is one of the gems of the silvery set, the short, bluntly terminated leaves, minutely pinnate, with pretty rosettes, above which, to 4 inches or so high, rise the pure white flower-heads. Habit very neat and compact. Asia Minor.

A. CLAVENNÆ.—The pronouncedly forked and jagged leaves of this silvery-leaved kind separate it from all. Six inches or 8 inches high, free and vigorous in growth, and of striking whiteness, it is a plant for all. Both stems and leaves are endowed with a felt-like covering of silky hairs. Flower-heads white in a corymbose cyme. Common on calcareous rocks, E. Alps, etc.

A. HOLOSERICEA.—A good silvery-leaved sort of a neat, erect habit of growth, whose 6-inch long leaves approximate to the common Milfoil in outline. The leaflets are usually five-parted. Flowers golden-yellow. Greece.

A. HUTERI.—A silvery species of tufted habit, and with distinctly notched leaves, growing 6 inches or more high. A good carpeter of the soil. Flower-heads white. Switzerland.

A. RUPESTRIS.—An Italian species with evergreen, and usually entire leaves, though in free growth they are frequently toothed at their extremities. The pure white flowers, which are freely produced at 4 inches to 6 inches high, contrast sharply with the foliage. An excellent rock-garden subject, preferring a good bed of sandy loam.

A. SERBICA.—A tufted species of free growth, having short, narrow, finely-pinnate, more or less silvery, leaves, and a wealth of pure white flowers. An excellent rock or wall plant. So placed, the plant is usually very free flowering. On level ground it is less silvery and flowers less freely. Four to 6 inches high. Servia.

A. TOMENTOSA.—Of carpeting habit, and one of the best known, forms dense patches of woolly-green foliage, from which spring numerous corymbs of golden-yellow flower-heads about 9 inches high. Succeeds well in loamy soils, while growing most freely in those of a sandy nature. It flowers in May and June, and frequently later on in the season. Europe and N. Asia.

A. UMBELLATA.—A Grecian species, and quite one of the prettiest and most distinct. It dislikes strong loamy soils or anything approaching wetness, and is happiest in a hot, dry, or poor, stony soil. In such it ranks with the best of the silver-leaved sorts. Admirably suited to a dryish wall with sunny aspect. Height 6 inches to 9 inches, or even more occasionally. Flowers white.

ACONITUM (*Monkshood*).—Tall and handsome herbaceous plants, of the Buttercup order, dangerous from their poisonous roots. There are many names, but not so many species of value for our gardens. They should not be planted where the roots could be by any chance dug up by mistake for edible roots, as they are deadly poison; almost all the kinds may be easily naturalised in shrubberies away from the garden, or in openings in rich bottoms.

The best kinds are *A. Napellus* and its forms, *versicolor,* and others; *chinense, autumnale, japonicum,* and *tauricum; Fischeri, Wilsoni, Vilmorinia-*

num, volubile. They are from 3 feet to 5 feet high, and flower from July to September. *A. Fortunei,* the old *chinense* of gardens, is the best for late blooming. It is best to keep them all out of the flower or kitchen garden.

ACORUS (*Sweet Flag*).—Waterside plants of the arum order, easily cultivated. *A. Calamus* is now naturalised in most parts of Europe. *A. gramineus* has a slender creeping rhizome covered with numerous grass-like leaves, from 4 to 6 inches in length. This plant is often seen in the little bronze trays of water-plants in Japanese gardens. China.

ACROCLINIUM.—*A. roseum* is a pretty half-hardy annual from Western Australia, growing over 1 foot high with rosy-pink flowers, used as "everlasting" flowers. Seeds should be sown in frames in March, and the seedlings planted at the end of April or early in May in a warm border; or the seeds may be sown in the open ground in fine rich soil at the end of April. If the flowers are to be dried, it is best to gather them when fresh and young—some in the bud state.

ACTÆA (*Baneberry*).—Vigorous perennials of the Buttercup order, 3 feet to 6 feet high, thriving in free soil; flower spikes, white and long, with showy berries. The white Baneberry has white berries with red footstalks. The var. *rubra* of *A. spicata* has showy fruit. The plants are best suited for rich bottoms in the wild garden, as though the foliage and habit are good, the flowers are short-lived in the ordinary border, and somewhat coarse in habit. *A. spicata* (common Baneberry or Herb Christopher), *A. racemosa* (black Snakeroot), *A. alba* (white Baneberry), having white berries with red stalks, and one or two American forms of the common Baneberry are in cultivation. The flowers have often a very unpleasant smell, which lessens their value as garden plants.

ACTINELLA. — North American composites of which there are three kinds in gardens, dwarf-growing plants with yellow flowers. The finest is *A. grandiflora* (Pigmy Sunflower), a native of Colorado, an alpine plant with flower-heads 3 inches in diameter, growing from 6 inches to 9 inches high. The other species, *A. acaulis, A. Brandegei,* and *A. scaposa,* are somewhat similar. They are all perennial, and thrive in a light soil.

ACTINIDIA. — Climbing summer-leafing shrubs of the Camellia order from Japan and China, thriving in warm soil. They all have climbing or twining stems, and bear waxy white flowers. Some grow freely in cold, poor soil, and are excellent on pergolas or climbing up old tree stems and bold fences. *A. argenta* is a very vigorous climber in its own country, and grows freely here. A native of Japan and the Amur region and quite hardy. Actinidia arguta is one of the most vigorous in a very vigorous group. *A. chinensis* is also a fine climber of vigorous growth, the fruit large—about the size of a walnut—and of agreeable flavour. *A. Henryi* is a tall climber; native of the high mountain forests of China. *A. Kolomikta* is a very striking plant in its foliage, occasionally half the leaf being whitish. It is not the strongest grower, and is better on walls in sunny places. Manchuria and Japan.

ADENOCARPUS DECORTICANS.—A pea-flowering shrub, not common, with flowers like Gorse. According to Mr Bean in *Trees and Shrubs,* p. 165, it is a native of Spain, and only hardy in the milder parts of Great Britain, needing at Kew wall protection, but in the gardens at Grayswood Hill, near Haslemere, thriving splendidly. Mr Bean has seen shrubs there in May and early June 6 to 8 feet high, with golden blossom from end to end of their branches, and making most gorgeous pictures. "Like so many of its race, this shrub is not long-lived, and care should be taken to sow a few seeds occasionally, to renew the stock if needed. It should have the sunniest position available.

ADENOPHORA (*Grand Bellflower*).—Hardy perennials of the Bellflower family, 18 inches to over 3 feet high. They are mostly from Siberia and Dahuria, with flowers generally blue in colour. Some of the most distinct species are *A. coronopifolia, A. denticulata, A. Lamarckii, A. liliiflora, A. polymorpha, A. stylosa,* and *A. megalantha.* In these occur slight variations in colour and size of flower. Their thick fleshy roots thrive in a rich loam, and like a damp subsoil; impatient of removal, and should not be increased by division. Seed freely, and are easily increased. In *The Garden,* 23rd August 1919, Sir Herbert Maxwell praises this plant as doing well in Scotland.

ADIANTUM (*Maidenhair Fern*).—Elegant ferns, few hardy, growing best in a rough fibry peat, mixed with sand and lumps of broken stone or brick. *A. pedatum*, the N. American kind, is charming among shade-loving plants in the fern garden with the more beautiful wood-flowers, such as Trillium, Hepatica, and blue Anemone, in moist soil. *A. Capillus veneris*, the British Maidenhair Fern, is best in a sheltered nook at the foot of a shady wall, and in the southern warmer countries might be found near fountain basins and moist corners of the rock garden and hardy fernery, though our climate is not warm enough for its full growth.

ADLUMIA (*Climbing Fumitory*).—Climbing biennial plants. One species only (*A. cirrhosa*) is known, a rapid grower. Its Maidenhair Fern-like leaves are borne on slender twining stems with abundant white blossoms, about ½ inch long. There is a variety with purple flowers. It thrives in a warm or peaty soil, and is best seen trailing over shrubs. In peaty or leaf soil sometimes sows itself. North America.

ADONIS (*Pheasant's Eye*).—Beautiful perennial or biennial plants, belonging to the Buttercup order, chiefly natives of cornfields in Europe and Western Asia, dwarf, with finely-divided leaves, and red or yellow flowers. *A. vernalis* (*Ox-eye*) is a handsome alpine herb, forming dense tufts 8 inches to 15 inches high, of finely-divided leaves in whorls along the stems, blooming in spring, with large, yellow, Anemone-like flowers, 3 inches in diameter. Of *A. vernalis* there are several varieties, the chief being *A. v. sibirica*, which differs in having larger flowers. *A. apennina* is a later-blooming form, and is a good plant for moist spots on the rock garden. *A. pyrenaica* is from the Eastern Pyrenees, but with broader petals. *A. amurensis*, from Manchuria, has finely-cut leaves, blooming with the Snowdrop. *A. Davurica* is a very early kind. *A. autumnalis* is a pretty bright-coloured annual. The rock garden or borders of sandy loam suits the perennial kinds well. Division, or by seed sown as soon as gathered.

ÆGLE SEPIARIA (*Hardy Orange*).—An interesting shrub of the Orange family, hardy in the country round London. It thrives in ordinary loam, and flowers very prettily in spring, like a large Almond. With me, the flowers bear small fruits like Oranges. It is used by the Japanese as a fence plant, and with its spines and stout habit is quite a good one. This has proved quite free and hardy in my garden, and it may some day prove a good fencing plant.

ÆSCULUS (*Buckeye*).—Mostly medium-sized trees, hardy and excellent for park or garden. The common kind is an exception as to size, and one of the most beautiful of flowering trees. The red Buckeye (*Æ. Pavia*) is a small tree, with dense and large foliage, together with bright red flowers in large loose clusters in early summer. Sometimes it rises from 15 to 20 feet high, but some of its varieties are only low-spreading or trailing shrubs. *Æ humilis, pendula, arguta,* and *laciniata* are forms of *Æ. Pavia*, and the plants are useful for grouping with taller trees. *Æ. flava* (the yellow Buckeye) is sometimes 40 feet high, with something of the habit of the red Buckeye (*Æ. rubicunda*), but smoother leaves. A variety called *purpurascens* (sometimes *Æ. discolor*) has much showier flowers, larger, and of a reddish tint. The Æsculi, named in gardens and nurseries as *Æ. neglecta, hybrida, pubescens, Lyoni, rosea,* and *pallida*, may be included in one of the foregoing species. They are all low trees or large shrubs, coming into leaf early and losing their foliage in early autumn, especially in light or dry soils. One of the best of the forms is the *Æ. Brioti*. The Californian Buckeye (*Æ. Californica*) in this country does not usually rise above shrub height. It has slender-stalked leaves, broad leaflets, and in early summer dense erect clusters of pinkish fragrant flowers; a valuable hardy tree. The N. American *Æ. parviflora* (dwarf Buckeye) is a handsome shrub, 6 to 10 feet high, flowering in late summer. Its white, fragrant flowers are in long, erect plumes. *Æ. macrostachya* is an August-blooming N. American shrub of great beauty. The growth is spreading and bushy, with creamy white flowers in dense plumy spikes.

Æ. INDICA, the Indian Buckeye is as handsome as *Æ. Hippocastanum*, and flowers about the end of June. In the Himalayas it sometimes grows 100 feet high. The leaves are larger and smoother

than those of other tall-growing kinds, whilst the panicles of flowers are sometimes a foot long. The fruits are free from spines.

Æ. WILSONI, a Chinese species, is closely allied to the Indian kind. It is remarkable for its large leaves, the centre leaflet sometimes exceeding a foot in length, and for its long panicles of small white flowers. There are other species not yet introduced or tried in Britain.

ÆTHIONEMA.—A beautiful group of alpine and rock plants found on the sunny mountains near the Mediterranean. They grow freely in borders of well-drained sandy loam, but their home is the rock garden. The tall *Æ. grandiflorum* forms a spreading bush about a foot high, from which springs racemes of pink and lilac flowers. It also grows well in borders in ordinary soil, and, when in flower in summer, is among the loveliest of plants. As the stems are prostrate, a good effect will come from planting them where the roots may descend into deep earth, and the shoots fall over the face of rocks at about the level of the eye. Easily raised from seed, and thrive in sandy loam. There are many species, but few are in gardens. All the cultivated kinds are dwarf, and may be grouped with alpine plants best on raised sunny borders. The other best kinds are *A. coridifolium, A. pulchellum, A. persicum.*

ÆTHIOPAPPUS PULCHERRIMUS.—A charming pink, Centaurea-like flower, the blooms borne singly on stems each about 18 inches in height. The foliage is greyish-white. I first planted this in the mixed border, but it was not happy in that position, so it was moved to a warm, sunny bank, where it is more at home. The centre of the flower is creamy-white, outside pink. A rather rare and interesting plant for the rock garden.

AGAPANTHUS (*African Lily*).—Beautiful plants from S. Africa, with blue or white flowers in umbels on stems 18 inches to 4 feet high. *A. umbellatus,* the old kind, is hardy in some mild seashore districts, and a fine plant in rich warm soil, but better for the protection of leaves round the root in winter. It is worth growing for the flower garden and vases in summer, but should be protected in winter by storing under stages, in sheds or cellars. It likes plenty of water during out-of-door growth, and is easily increased by division. Of the best-known kind, *A. umbellatus,* there are several varieties; *major* and *maximus* are both larger than the type, and of *maximus* there is a white-flowered variety. There is a smaller one with white flowers, one with double flowers, and varigated-leaved kinds,

The largest is *A. umbellatus giganteus,* with high flower-spikes 3 to 4 feet, with umbels bearing from 150 to 200 flowers. The colour is a gentian blue; the buds of a deeper hue. *Pallidus* is a pale porcelain blue, a short-leaved variety. *A. u. minor* is a dwarf variety. Of *A. umbellatus* there is a double-flowered variety, a distinct plant. There is, moreover, *A. u. atrocœruleus,* a dark violet variety. *A. u. maximus* has flower-stalks 4 feet long, and full heads of flowers, one set opening while a second is rising to fill up the truss as the first crop fades. *A. Mooreanus* is hardy, from 12 inches to 18 inches high, has narrow leaves, and comes true from seed. Although the African Lily exists in the south in certain spots, in a large part of our islands it is not hardy, and therefore requires to winter in the greenhouse. When out of doors it used to be much grown in tubs, but this I found to be laborious and unprofitable, in view of the many hardy things we had, and so gave it up.

AGATHÆA (*Blue Daisy*).—*A. cælestis* is a tender spreading Daisy-like plant, with blue flowers useful for the margins of beds. It is among the prettiest of the half-hardy bedding plants, but is not so good on cold soils. Cuttings or seed.

AGROSTEMMA (*Rose Campion*).—*A. coronaria* is a beautiful old flower, of the Pink family, hardy and free, most at home in chalky and dry soils. It is a woolly plant, 2 feet to 3 feet high, bearing many rosy-crimson flowers in summer and autumn; easily raised from seed, excellent for borders, beds, and naturalisation on dry banks. It is biennial and often perishes on some soils. There is a white variety and a double-red one. *A. Githago* is a large annual, occasionally grown in botanic gardens. *A. Walkeri* is a hybrid between *A. coronaria* and *A. Flos-Jovis,* very compact, free flowering, and rich in colour.

AGROSTIS (*Cloud Grass*).—A family of grasses, the annual kinds graceful.

There are some half a dozen kinds grown, the best *A. nebulosa*, forming delicate tufts about 15 inches high, and is useful for rooms. If cut shortly before the seed ripens and dried in the shade, it will keep for a long time. The seed may be sown either in September or in April or May, and lightly covered. *A. Steveni*, *multiflora*, and *plumosa* require the same treatment. *A. Spicaventi* is very graceful, especially if grown from self-sown seeds. *A. pulchella* is also useful for the same purpose, dwarfer and stiffer than *A. nebulosa*.

AILANTHUS (*Tree of Heaven*).—A Chinese hardy tree, thriving in the

Young Ailanthus tree.

southern parts of our country. Cut down every year gives a good effect. Vigorous young plants and suckers in good soil will produce handsome arching leaves 5 feet long. Cuttings of the roots.

A. VILMORINIANA.—Like the older species, a native of China, and remarkable for long, handsome, pinnate leaves. It differs from *A. glandulosa* chiefly in its spiny bark and in the red midribs of its leaves. The leaves are fully 4 feet long on vigorous specimens, and clothed with soft, silky hairs.

AIRA (*Hair Grass*). — Graceful grasses, of which one of the prettiest is *A. pulchella*, with hair-like stems, growing in light tufts 6 inches high. It is useful for edgings, amongst plants in borders, or for pots for rooms. Its panicles give a charm to the finest bouquets. *A. c. vivipara*, with its panicles of graceful viviparous awns, resembles a miniature Pampas Grass. *A. flexuosa* (the Waved Hair Grass) is a graceful perennial. Of easy culture in ordinary garden soil. Seed.

AJUGA (*Bugle*).—A small family of dwarf herbs of the Sage order, flowering in spring and early summer, and having purplish flowers. They grow on mountain or lowland pastures, and are easily increased by division. *A. genevensis* is among the best, and is distinguished from the common native Bugle (*A. reptans*) by the absence of creeping shoots. The flower-stems are erect, from 6 inches to 9 inches high; the flowers deep blue, and in a close spike. Useful for the mixed borders. There is a white variety of *A. reptans*, also a form with variegated leaves, and another with purplish ones, this being finer than the type.

AKEBIA.—Of these climbing or twining shrubs of the Barberry order, *A. quinata* is best known. It comes from China, hardy, is a good climber for a trellis, pergola, or wall. It is best to let it run over an Evergreen, being then better protected against cold winds. It has long, slender shoots, and fragrant claret purple flowers of two kinds—large and small, which are produced in drooping spikes. The Japanese *A. lobata* is a climber of elegant habit, the leaves pretty in form, the flowers small, dull, and fragrant.

ALISMA (*Water Plantain*).—Water plants, of which two are fitted for growing with hardy aquatics. *A. Plantago* is rather stately in habit, having tall panicles of pretty pink flowers. When once planted it sows itself freely, often becoming a weed. The other kind is *A. ranunculoides*, a few inches high, in summer bearing many rosy blossoms. Both are adapted for wet ditches, margins of pools, and lakes. *A. natans* is a small floating pretty British plant. There are one or two Chinese kinds, single and double.

ALLIUM (*Garlic, Onion*).—Liliaceous bulbs not often of value for the garden, and with a strong odour when crushed. To growers of collections there are a few worth growing. They thrive in ordinary soil, the bulbs increasing rapidly, some giving off little bulblets, which in some soils make them too numerous. Among the kinds worthy of culture are: *A. neapolitanum, paradoxum, ciliatum, subhirsutum, Clusianum pulchellum, triquetrum* (all with white flowers), *azureum* and *cæruleum* (blue), *pedemontanum* (mauve), *Moly* and *flavum* (yellow), *fragrans* (sweet-scented), *oreophyllum* (crimson), *descendens* (deep crimson), *narcissiflorum* (purplish), *Murrayanum, acuminatum,* and *Macnabianum* (deep rose). These mostly grow from 1 to 18 inches high, some 2 or 3 feet.

ALLOSORUS (*Parsley Fern*).—*A. crispus* is a beautiful little British Fern found in mountainous districts. It requires abundance of air and light, but should be shaded from the hot sun. In the rock garden in cool spots it does well between large stones, with broken stones about its roots.

ALNUS (*Alder*).—A neglected group of trees of some value in moist places, and to help to bind the banks of streams. Of the native kind, *A. glutinosa,* there are several varieties, and of the cut-leaved one there are fine specimens at Wynnstay and many other places. *A. incana* has also several varieties seldom of more value than the wild tree. Among other cultivated kinds are *japonica, viridis, cordifolia, barbata, occidentalis, oregona,* and *serrulata,* all of easy culture.

ALONSOA (*Mask-flower*).—Mostly Peruvian annual plants, of the Snapdragon order. The best species are *A. Warscewiczi,* having small bright orange-red flowers; *A. linifolia* and *A. acutifolia*—a slender-growing herb; *A. incisifolia,* also a pretty kind; similar to this is *A. myrtifolia,* of vigorous habit, with flowers larger than any other kind, and of a more intense scarlet than those of *A. linifolia; A. albiflora* has pure white flowers, yellow in the centre, and *A. linearis* has light scarlet flowers. All are easily grown in the open ground. Seed in spring.

ALOYSIA (*Sweet Verbena*).—*A. citriodora* is a fragrant-leaved bush with small and not showy flowers. Its pale green foliage goes well with any flower, and it may be grown against a sunny wall, where, if protected by a heap of ashes over its roots and a warm straw mat over its branches, it will pass through the winter safely. If uncovered too soon in spring, the young growths get nipped by late frosts. It is increased from cuttings, and is a hardy wall plant in mild districts. Verbena order. Chili.

ALSTRÖMERIA (*Peruvian Lily*).—Handsome tuberous plants of the Amaryllis order, which require a well-drained soil, the best place being a south border, or along the front of a wall having a warm aspect, where, if the soil is not light, it should be made so. They are best planted in autumn when dormant, arranging the dry roots (tubers) 6 inches deep at least. When established they descend deeply, and are not then affected by frost. *A. aurantiaca* is the hardiest kind, and freshly-planted groups of the others should be mulched in winter in all but the more favoured parts of these islands. The plants are increased readily by division when dormant, and also by seeds, which are freely produced.

Grown in masses they are very beautiful, varying much in their colour markings. While blooming they should have waterings, otherwise they get too dry, and ripen off prematurely. When going out of flower remove the seed-heads, where these are not required, otherwise the plants may become exhausted. No trouble is involved in staking and tying, for the stems are strong enough to support themselves, unless in very exposed situations. They last long when cut.

The kinds in cultivation are:—

A. AURANTIACA (*A. aurea*).—A vigorous growing Chilian kind, 2 feet to 4 feet high, flowering in summer and autumn. The flowers are large, orange-yellow, streaked with red, and umbels of from 10 to 15 blooms terminating the stems.

A. BRASILIENSIS.—A distinct kind with red and green flowers, and dwarfer than the preceding. Known also as *A. psittacina.*

A. CHILENSIS.—A quite hardy kind from Chili, with many varieties that give a wide range of colours from almost white to deep orange and red.

A. PELEGRINA.—Not so tall or robust as the last; but the flowers are larger,

whitish, and beautifully streaked, and veined with purple. There are several varieties, including a white one (*A. p. alba*), which requires protection. When well grown it is a fine pot plant, compact, and crowned with almost pure white flowers. It is called the Lily of the Incas. *A. peregrina* is synonymous.

Other good kinds are the hardy variable-coloured *A. versicolor* (*A. peruviana*) and St Martin's flower (*A. pulchra*); this, however, requiring protection.

ALTHÆA (*Hollyhock*).—Biennial or perennial plants of the Mallow family, consisting chiefly of coarse-growing plants. Some, such as *A. rosea*, from which the Hollyhock has sprung, are showy garden flowers. The other wild species are generally characterised by great vigour, and hence are not very suitable for the choice flower garden. They thrive in almost any situation or soil.

Alströmeria (Peruvian Lily).

A. ROSEA (Hollyhock).—One of the best hardy plants, valuable for bold and stately effects among or near flower-beds. Cottage bee-keepers would do well to grow a few Hollyhocks, for bees are fond of their flowers. They demand deep cultivation, much manure, frequent waterings in dry weather, with occasional soakings of liquid manure, to secure fine spikes and flowers. They require good garden soil, trenched to the depth of 2 feet. A wet soil is good in summer, but injurious in winter, and to prevent surface wet from injuring old plants left in the open ground, remove the mould round their necks, filling up with about 6 inches of white sand. This will preserve the crowns of the plants. It is best, however, if fine flowers are desired, to plant young plants every year, as one would Dahlias, putting them 3 feet apart in rows at least 4 feet apart; or, if grouped in beds, not less than 3 feet apart. In May or June, when the spikes have grown 1 foot high, thin them out according to the strength of the plant; if well established and strong, leaving four spikes, and if weak two or three. By topping we increase the size of the flower, but shorten its duration. Stake them before they get too high, tying them securely, so as to induce them to grow erect. The most robust will not require a stake higher than 4 feet. Hollyhocks may be propagated by single eyes, put in in July and August, and also by cuttings put in in spring, on

a slight hot-bed. Plants raised in summer are best preserved by putting them in October into 4-inch or 5-inch pots in light, rich, sandy earth, and then placing them in a cold frame, giving them plenty of air. Thus treated they will grow a little in winter. In March or April turn them out into the open ground, and they will bloom as finely as if planted in autumn. Plants put out even in May will flower the same year. In October lift all it is desired to save, and lay them close together in a slanting direction, at an angle of about 45°, in a warm, mellow soil at the foot of a wall or hedge, where, in hard weather, shelter can easily be given. Choice and scarce varieties may be either potted up or planted out in a frame. Some of the stools will have numerous growths starting from them, and unless the plants have a little heat early in the year, many of the cuttings cannot flower the same season.

Owing to the Hollyhock disease it is often a better plan to abandon the named kinds increased from cuttings and resort to seedlings only. This way is all the more sure, as seed growers of late years have fixed and separated the colours so that a fine variety of good ones may be secured in this way, while the plants are more vigorous, and in any case will often start free from the disease. Red spider and thrips are both very troublesome, but the first does most injury. It appears on the undersides of the leaves as soon as the hot weather sets in, and is difficult to dislodge. If there is any trace of red spider before planting out, the whole plant, except the roots, should be dipped in a pail of soft soapy water, to which a pint or so of tobacco liquid has been added. It will be well to syringe the undersides of the leaves with the mixture if the plants have been planted out before the pest is perceived. Thrips may be destroyed in the same way, and it is well to syringe the plants every *day in hot weather*.

The Hollyhock Fungus is very destructive to it. When once it seizes a collection, the best way is to destroy all the plants affected. Those that do not appear to be attacked should be washed with soapy water in which flowers of sulphur has been dissolved. The sulphur will settle at the bottom of the vessel, and must be frequently stirred up when the mixture is being used. Sulphur seems to destroy almost any fungus, and may destroy this in its very earliest stages, but will not when established.

ALYSSUM (*Madwort*).—Rock and alpine plants. *A. saxatile* (the Rock Madwort) is one of the best of yellow spring flowers, hardy in all parts of these islands. It is often grown in half-shady places, but should be fully exposed. It is well fitted for the spring garden and the mixed border, and for growing with evergreen Candytufts and Aubrietias. In winter it perishes in heavy, rich clays when on the level ground. A native of Southern Russia, it flowers with us in April or May. There is a dwarfer variety, which differs little from the old plant. *A.*

Alyssum montanum.

Gemonense has the habit of *A. saxatile*, but larger flowers. *A. montanum* is a dwarf plant, spreading into compact tufts, 3 inches high. *A. podolicum* is a small hardy alpine from S. Russia. It has in early summer a profusion of small white blossoms, and is suited for the rock garden or the margins of borders. *A. pyrenaicum* is a neat rock plant with white flowers. *A. spinosum* is a silvery little bush with white flowers, and there is a pink form, *A. spinosum roseum*. *A. serpyllifolium* is a grey-green leaved form, with yellow flowers. Small plants quickly become Lilliputian bushes, 3 inches to 6 inches high, and when fully exposed are almost as compact as Moss.

Among other kinds, *A. Wiersbecki* and *A. olympicum* are not quite so good as the common kind. The alpine and rock kinds are of easy culture in light or dry soil, as indeed are all the species. *A. maritimum* is the Sweet Alyssum, a small annual with white flowers. It grows on the tops of walls in the west country, and in sandy places. In these situations it is perennial; in gardens is grown as an annual.

AMARANTHUS (*Prince's Feather, Love-lies-bleeding*). — Annual plants, some of distinct habit and colour. The old Love-lies-bleeding (*A. caudatus*), with its dark-red pendent racemes, is a fine plant when well grown, but *A. speciosus* and some other varieties are finer. The more vigorous species grow from 2 to 5 feet high. It is best to give them room to spread, otherwise much of their picturesque effect is lost. Easily raised as any annual, they deserve to be well thinned out and put in good ground.

A group of the Belladonna Lily.

AMARYLLIS.—Showy bulbous tropical plants, few of the species of which are hardy, though the beautiful Belladonna Lily (*A. belladonna*) may be grown well in the open air, and is, in fact, almost too free in some soils in Cornwall. It is a noble bulbous plant from the Cape of Good Hope, from 1½ feet to 3 feet high, blooming late in summer, the flowers, as large as the white Lily, and of delicate silvery rose in clusters on stout, leafless stems, arising from the large pear-shaped bulbs. To grow it in inland and less favoured districts, choose a place on the south side of a house or wall, take out the whole of the soil to the depth of 3 feet, and place about 6 inches of broken brick in the bottom. Over this put some half-rotten manure to keep the drainage open, and feed the plant. If the natural soil is not good, add some sandy mellow loam, or if stiff a few barrow-loads of leaf mould, and one or two of sharp sand mixed with it. Tread this firm, plant the bulbs in small groups, about 1 foot apart, and if the border is of such a width as to take a double row, the plants in the second should be alternate with those in the first. Place a handful or so of sharp sand round the bulbs to keep them from rotting. If planted in autumn, or at any time during the winter, it will be well to protect them from severe weather by half-rotten leaves, cocoa-nut fibre, or fern. The plants begin to push forth their new leaves early in spring, and upon the freedom with which they send forth these during summer the bloom in the autumn depends. During dry weather give an occasional soaking of water, and with liquid manure once or twice. As soon as the foliage ripens off, remove it, and clean the border before the blooms begin to come through the soil. *A. B. blanda* is a variety with larger bulbs, bearing noble umbels of white flowers, turning to pale rose in summer, and there are other varieties.

AMELANCHIER (*Snowy Mespilus*).—Hardy shrubs and low or medium-sized trees. *A. canadensis* is one of the best of our flowering trees, and long before it comes into flower it is pretty with its soft brown-grey masses. In its own country it varies very much in size, some forms being mere shrubs, whilst others make trees 40 feet and even more in height. In botanic gardens and nursery catalogues we find the names of several other trees of this genus, but there seems to be little distinction among them, and none is quite so good as this, though the one which grows in the Maritime Alps (*A. vulgaris*) should be worth a place. The Americans have selected some forms of the shad bush, which bear better fruit than the common form; if they would bear it in our own country it would make the bush more valuable. It has also the advantage of being raised very easily from seed, and increases rapidly by suckers. Other American kinds as yet little grown in our gardens are *Botryapium, alnifolia, oligocarpa, spicata,* and *utahensis.*

AMELLUS.—*A. annuus* is a pretty dwarf hardy annual, with Daisy-like flowers of a deep purple, but with white, rose, scarlet, and violet varieties, which are named in catalogues *alba, rosea, kermesina,* and *atro-violacea.* It forms a compact tuft, suitable for groups or masses, if sown in the open in April, flowering in June. It makes a pretty ground or "carpet" plant with taller plants here and there through it. Cape of Good Hope. Syn. *Kaulfussia amelloides.*

AMICIA.—*A. zygomeris* is a quaint plant from Mexico. Mr E. H. Woodall praises it for those who like a bold and distinct plant in a warm situation in summer, and have means to protect or take it up and pot it in winter. The flower, though bright, is not effective.

AMMOBIUM (*Winged Everlasting*).—*A. alatum* is a handsome everlasting from New Holland, 1½ to 3 feet high, bearing white chaffy flowers with yellow discs from May till September. In sandy soil it is perennial, but on heavy soils must be grown as annual. Seed.

AMORPHA (*Bastard Indigo*).—Hardy shrubs of the Pea order, thriving in ordinary garden soil, but requiring a sheltered situation in bleak localities. Increased by layers or cuttings in autumn, or from suckers. *A. canescens* (the Lead Plant) is a native of Missouri. It has clusters of blue flowers and hoary leaves. *A. fruticosa* (the False Indigo) comes from California, and there are many forms of it, differing but slightly, all having bluish or dark purple flowers. I have not seen any good effects from these plants.

AMPHICOME.—Dwarf shrubby plants allied to Incarvillea, with trumpet-shaped flowers and elegant foliage. In *A. arguta* the flowers are red, coming as drooping racemes during August, and the finely-cut leaves are deeply serrated. *A. Emodi* is dwarfer and hardier, its pale-red flowers with an orange throat being 2 inches long and held erect. Freely produced from August, they are very showy, and continue for weeks in a genial autumn. They grow well in loam or leaf mould, but are not hardy enough for permanent cultivation in the open air. Increase by seeds, or cuttings of the shoots in spring. Bignonia order. Himalayas.

ANAGALLIS (*Pimpernel*).—Pretty half-hardy annuals of the Primrose family. The best known is the Italian Pimpernel (*A. Monelli*), with large blossoms, deep blue shaded with rose. There are several varieties—*rubra, grandiflora, Wilmoreana,* bright blue-purple, yellow eye; *Phillipsi,* deep blue, rose-coloured centre; *Breweri,* intense blue; *linifolia,* fine blue, very dwarf; and *sanguinea,* bright ruby—all flowering from July to September. The Indian Pimpernel (*A. indica*) has small, bright blue flowers. Pimpernels grow well in ordinary garden soil, and are used with good effect in borders or edgings to beds. The pretty little bog Pimpernel (*A. tenella*) is a native creeping plant, with slender stems and myriads of tiny pink flowers. *A. grandiflora* is one of the best annual flowers.

ANCHUSA (*Alkanet*).—Stout herbaceous and biennial plants of the Forget-me-not family; some worth growing, amongst the best being *A. italica,* which is vigorous, 3 to 4 feet high, with beautiful blue blossoms. The Dropmore variety is a valuable plant, and there are several other forms, 2 feet high, with flowers of

rich violet. *A. capensis* has large, bright blue flowers, rather tender; it should be planted in a sheltered, well-drained border. Opal, of sky-blue tone, is equally valuable. In planting these two should be kept well apart. These *italica* forms of Anchusa do not come true from seeds, and should be increased periodically by means of root cuttings. Root-pieces, 12 inches long, are ample, and inserted in boxes of sandy soil soon make growth. The work may be done almost any time from September to March. With growth made, the young plants may be potted for a time and put out in permanent positions in early spring. *A. sempervirens* is a British perennial, 1½ to 2 feet high, with blue flowers, worth a place in the wild garden. Seeds or division.

ANDROMEDA. — Various shrubs usually called Andromedas in gardens belong to other genera, and there is only one true species of Andromeda known, viz., *A. polifolia* (Moorwort), a native of Britain and N. Europe, growing from about 6 to 18 inches high, and bearing purplish-red flowers from May to September. It is best grouped in peat beds or in the bog garden.

ANDROSACE.—Alpine plants of great beauty, belonging to the Primrose order. Other families, like Primroses and Hairbells, come down to the hill-pastures, the sea-rocks, or the sunny heaths, but these are more alpine than the Gentians, and as they are, among flowering plants, those most confined to the snowy peaks, so they are the dwarfest of this class. Here they must endure intense cold, which would destroy all shrub or tree life exposed to it. And here in spring they flower. Androsaces in cultivation enjoy small fissures between stones, firmly packed with pure sandy peat, or very sandy or gritty loam, not less than 15 inches deep. They should be so placed that no wet can gather or lie about them, and so planted in between stones that, once well rooted into the deep earth—all the better if mingled with pieces of broken sandstone—they never suffer from drought. It is easy to arrange rocks and soils so that, once the mass below is thoroughly moistened, ordinary drought has little effect.

A few kinds such as *A. lanuginosa* and *sarmentosa* do well in ordinary conditions of soil; but many of the dwarf kinds rarely thrive except in northern or hilly districts. When out of flower, it is easy to forget such tiny plants, so that they may suffer neglect while making the summer growth. A constant watch is needed for aphis, slugs, and red spider. Towards autumn syringing them with clear water does good, and a surface-dressing of soil and stone-chips helps before winter, and should be renewed in spring, if need be, when all planting should also be done. When this top-dressing is well done, fresh roots are often made from the underside of the prostrate stems, and this is a great gain. The woolly-haired kinds, which often fail from damp in our winters, should be planted in the crevices of upright rocks, or under ledges. The rocks among which they are planted should be well sunk in the ground with thin layers of good soil and broken stone between them; the roots delight in the layer of moist earth just under stones. Most kinds thrive in full sun, the best aspects being south and west. Over forty species are known, and others may be found when the mountains of India, Thibet, and China are fully explored. About twenty kinds are found in the Alps, some extending eastward by way of Austria, or southward to the Pyrenees, where four others occur peculiar to that country. A large group belongs to the Himalayas,

Androsace sarmentosa.

and reaches thence to China. The following list gives the best kinds in cultivation and of value for the rock garden :—

A. ALBANA.—One of the mossy kinds, forming small rosettes of deeply-toothed oval leaves and dense heads of pale pink flowers from April to July.

A. ALPINA.—A gem for the rock garden, not easily grown. Its tiny tongue-shaped leaves are in crowded rosettes, forming cushions of 2 or 3 inches high, covered in June with flowers—one from each rosette—rosy-purple with a yellow centre. It needs peat soil, moisture at the root, and a rather shady spot.

A. BRIGANTIACA.—A pretty plant thriving only in sandy or granite soils and upon slopes shaded from strong sun. It comes very near *A. carnea*, but with leaves of deeper green, and pure white flowers.

A. CARNEA.—One of the best kinds, early in flower, free, and easily grown in light soils without lime. It does not form rosettes, but little spreading shoots covered with narrow-pointed leaves of grey-green, and heads of rosy or pink flowers with a yellow eye. Water freely in dry weather, and shelter from the sun in summer. Alps and Pyrenees. Seeds sown as soon as ripe.

A. CARNEA var. EXIMIA.—A form of the last, hardier, more robust, and with larger flowers. It grows quickly into tufts 3 inches high, and if given dressings of light, gritty soil the prostrate shoots send roots from the underside.

A. CHARPENTIERI.—One of the best, free in flower, and of strong growth in sandy soils. Rosettes of tiny, downy leaves in crowded masses, and rich rosy flowers hardly rising above the leaves in June and July, after other kinds have done flowering. Thrives best in crevices of sandstone or granite rock, facing south-west. Seed. Alps.

A. CILIATA.—A scarce plant from the Pyrenees, growing in small, dense columns of deep green leaves fringed along the edges, and crowned in April and May by large stemless flowers of bright rose. Granite soils.

A. FOLIOSA.—One of the Himalayan kinds, beautiful and of free growth when well established. The leaves are not crowded into rosettes, but are large upon erect or trailing stems, grey with pale hairs, and turning reddish-purple in the autumn. The rosy-red flowers come upon long stems from June to September, and are large and in clusters sometimes of fifty flowers, lasting for a long time in beauty. It thrives in limestone soil, made light with leaf mould and grit, and mixed with plenty of broken fragments; in full sun, with moisture to the root in summer.

Androsace sarmentosa (engraved from a group on rock garden at Friar Park).

A. GLACIALIS.—In its wild state one of the most beautiful, growing in loose, flat tufts of branching stems clothed in downy leaves, and covered during early spring with flowers of pink paling to white. Thrives in clefts of sandstone rock, in full sun. Seeds. Alpine summits (always granite) at 6000 to 9000 feet.

A. HELVETICA.—A charming plant of the mossy section, growing in neat rounded cushions of grey-green, hairy leaves set in rosettes, and lovely white flowers with a yellow eye. The flowers are so large

as often to overlap. Thrives in gritty soil and partial shade, planted between limestone rocks closely set and deeply buried to secure moisture and drainage at the same time. Seeds. Alps and Carpathians.

A. IMBRICATA.—Pretty in leaf and flower, coming very near *A. helvetica*, but of denser growth, leaves narrower and silvery white with fine hairs, and white flowers set off by a bright rosy eye. Thrives in granite or sandstone grit in full sun. Seeds.

A. LACTEA.—A free, strong-growing plant, making rosettes of shining green leaves, and in spring large white flowers with a yellow centre, in broad loose clusters of five or six. Easily grown in light limestone soil, in sun or partial shade. Seeds. Limestone rocks from 3000 to 4500 feet, from the Cévennes through the Alps into Austria.

A. LAGGERI.—With clusters of narrow-pointed leaves, and flowers of bright pink paling towards the centre, gathered into showy little heads of six or eight. Very hardy, it is one of the earliest alpine flowers to open, starring the green tufts like a miniature Thrift. Sandy soil in partial shade, and no lime. Seeds or cuttings. Pyrenees.

A. LANUGINOSA.—A lovely and distinct plant with trailing silvery shoots, leaves covered with silky hairs, and flower clusters of soft rose colour. It does best in warm places near the sea, planted in sunny corners of the rock garden. Where the soil is free and open, it thrives as a border plant. It has a long season of flower, even lasting into October, growing best in south and west aspects, in sandy loam with a generous addition of mortar rubble. Cuttings 2 inches long of the unflowered shoots root readily in sandy soil in July and August. Seed (which ripens only in good years), layers, and cuttings. A good form of this is *Leichtlini*, with larger flowers of deeper colour with a conspicuous eye. From 7000 to 10,000 feet. Himalayas.

A. OBTUSIFOLIA.—Robust and easily grown, with large rosettes of spoon-shaped leaves fringed by fine hairs, and short downy stems carrying from one to six white or rosy flowers with a yellow eye. It is nearly 6 inches high, and may be gathered by the handful upon the alpine slopes at midsummer. With us it flowers earlier, planted in peaty soil and in full sun. Alps and Carpathians.

A. pubescens.—A mossy kind with leaves turning red-brown in autumn. It may be known by a small swelling on the very short flower-stem, just below the flower. These are white, rather large, with a faint yellow eye, and come singly just above the little cushion of hoary leaves covered with starlike hairs. Of easy culture in crevices of sandy soil. Alps.

A. PYRENAICA.—One of the same mossy group, with tiny grey rosettes in dense tufts, one flower from every centre, white like *helvetica* but less pure, not so well formed, and upon short stems. It is not easy to grow well, but does best in deep fissures between upright rocks; it may also be grown on the flat, in peat and sandy loam between buried stones. Central Pyrenees.

A. SARMENTOSA.—Leaves silvery with hairs, in dense rosettes, from which spring a few larger spoon-shaped leaves around the base of the flower-stem, and slender runners which spread and root in all directions. This kind spreads fast, when kept from damping by a layer of fine stones under the shoots and a glass shade in winter. It thrives in free limestone soil, firmly wedged between masses of rock in a sunny spot. The runners are easily layered and detached when rooted.

A. SEMPERVIVOIDES.—A rare plant, pretty, easily grown, spreading by runners, and bearing clusters of pink or purplish flowers upon a stout stem in May and June. Its tiny leaves curl in dense cone-like rosettes, at times only half an inch across, but often larger in gardens; the new shoots only take this curled form as they mature. This is one of the best of the Indian kinds, quite hardy, and growing well upon mounds of granite soil packed with stones. Kashmir and W. Thibet, at 11,000 feet.

A. VILLOSA.—A plant of wide range, from the Alps and Pyrenees eastward to Kashmir and the Himalayas, where it grows at elevations of 12,000 to 17,000 feet. The Western form is dwarf, with neat rosettes of shaggy leaves so thickly set with white or pale pink flowers that for the time the plant lies hidden. The Indian variety is of larger growth and blooms later, its leaves silvery with long, white hairs, and loose heads of flowers with a raised ring of darker colour at the centre. Plant firmly in good, free soil, with lime rubble and sandstone fragments to keep it well drained. The downy leaves need shields of glass in winter. Seed.

A. VILLOSA var. CHAMÆJASME.—A beautiful alpine plant known as the Rock Jasmine, inhabiting a vast range through Europe, Asia, and the Arctic regions. Though like *villosa* in flower it differs from it in leaf and habit, with a branching root-stock, spreading clusters of fringed leaves, and stout flower stems several inches high, bearing three to six flowers. These change from white to yellow, pink, and crimson, opening from May to June, and borne in long succession. It is one of the best and easiest of rock plants to grow in open soil, mixed and surfaced with broken lime rubbish or slate dust, thriving in full sun.

A. VITALIANA (Syn., *Douglasia*).—Like a tiny Furze bush, hardly an inch high,

with silvery leaves dusted over with white powder, and many flowers borne singly. Disliking dry or heavy soils, it does best in full sun, set in buried stones and free sandy loam mixed with pebbles and heath soil. Runners and seeds. Alps, Pyrenees and Sierras of Spain.

Androsaces are often high alpine plants, and it is only on the well-formed and cared-for rock gardens that one may grow more than a few kinds.

ANDRYALA.—Small plants of the Dandelion order; some with woolly leaves. The shrubby *A. mogadorensis* forms snowy masses on a little islet on the Morocco coast, and has not been found elsewhere. It bears flowers as large as a half-crown, of a bright yellow, the disc being bright orange. Little is known of its culture and hardiness. *A. lanata* has woolly silvery leaves, and grows well in any soil not too damp.

Androsace Villosa.

ANEMONE (*Windflower*).—A noble family of tuberous alpine meadow and herbaceous plants, of the Buttercup family, to which is due much of the beauty of spring and early summer of northern and temperate countries. In early spring, or what is winter to us in Northern Europe, when the valleys of Southern Europe and sunny sheltered spots all round the great rocky basin of the Mediterranean are beginning to glow with colour, we see the earliest Windflowers in all their loveliness. Those arid mountains that look so barren have on their sunny sides carpets of Anemones in countless variety. Later on the Star Anemone begins, and troops in thousands over the terraces, meadows, and fields of the same regions. Climbing the mountains in April, the Hepatica nestles in nooks all over the bushy parts of the hills. Farther east, while the common Anemones are aflame along the Riviera valleys and terraces, the blue Greek Anemone is open on the hills of Greece; a little later the blue Apennine Anemone blossoms. Meanwhile our Wood Anemone adorns the woods throughout the northern world, and here and there through the brown grass on the chalk hills comes the purple of the Pasque-flower. The grass has grown tall before the graceful alpine Windflower flowers in all the natural meadows of the Alps; later on bloom the high alpine Windflowers, which soon flower and fruit, and are ready to sleep for nine months in the snow. These are but few examples of what is done for the northern and temperate world by these Windflowers, so precious for our gardens also.

A. ALPINA (Alpine Windflower).—On nearly every great mountain range in northern climes, this is one of the handsomest plants, growing 15 inches to 2 feet high. Seed is the best way to increase it. Sow this in November in a rather moist, peaty bed out of doors, and allow the seedlings to remain for two years. When growth begins in spring transplant to where they are to flower. Full exposure, good drainage, and moisture in summer are essential.

A. ANGULOSA (Great Hepatica).—Larger than the Hepatica, with sky-blue flowers as large as a crown-piece, and five-lobed leaves. In rock gardens, or near them, it will succeed in spaces between choice dwarf shrubs in beds. Seed and division. Transylvania.

A. APENNINA (Apennine Windflower).—A blue, hardy, tuberous kind. This makes pictures with Daffodils, and adds a new charm to our spring. It is readily increased by division, and grows about 4 inches to 9 inches in height. Besides a white form there are others, not so important, however, as the wild one. Italy.

A. BLANDA (Greek Windflower). — A lovely plant from the hills of Greece, of a fine blue, and blooming in winter and early spring. It should be grown in every rock garden, planted on banks that catch the early sun. It has irregular tuberous

The Blue Apennine Windflower.

roots; increased by division and seed, and varies in size and colour. There are white, rose, and pink varieties. Excellent for naturalising in sandy ground. Sow the seed in drills in the open as soon as ripe. Greece, Asia Minor.

A. CORONARIA (Poppy Anemone).—One of the most admired flowers of our gardens from earliest times. There are many varieties, single and double. The single sorts may be readily grown from seed sown in the open air in April, and, being varied in fine colour, they deserve to be cultivated even more than many of the doubles. The planting of the double varieties may be made in autumn or in spring, or at intervals all through the winter, to secure a continuity of flowers; but the best bloom is secured by October planting. The Poppy Anemone thrives in warm loam, and the roots of the more select kinds may be taken up when the leaves die down. They are seldom worth this trouble, as many fine varieties may be grown from seed sown in June. Prick out the plants in autumn; they will flower well in the following spring, so that the plant is as easily raised as an annual. Apart from the old florists' or double Anemones and the single ones, there are certain races of French origin of much value, as the Caen Anemones. These are raised from the same species, but are more vigorous, and have larger flowers than the older Dutch kinds. Of the Caen Anemones there are both single and double kinds, and the Chrysanthemum-flowered is another fine double race, whilst one may also note the deep scarlet double form—Châpeau de Cardinal, and the double Nice Anemones. The fine variety of the Poppy Anemones leads to mixed collections being grown. While it is well to plant mixtures now and then, it is better to select and keep true some of the finer forms in any desired colour. A fine scarlet, purple, or violet kind should be grown by itself, as a greater aid to the garden artist. All kinds thrive in light garden soils of fair quality, and in many districts there is no trouble in their culture; in cold soils this plant never does well, and is often killed in winter.

A. FULGENS (The Scarlet Windflower).—A brilliant flower of the south of France. In good well-drained soils it will thrive, but is best in a rich loam in a northern aspect. Division is the surest way of increasing it, as it is liable to sport if raised from seeds. Roots may be transplanted almost all the year round, though the resting time extends only from June to August, and to ensure early and good flowers plant the roots as early as possible in the autumn. With me it thrives in meadow turf, and dies out in garden borders.

The Greek form of *A. fulgens* is larger, and very intense in colour. A fine strain was raised by the late Rev. J. G. Nelson, and called by him *A. fulgens major*. The Peacock Anemone (*A. Pavonina*) is a double form of this.

A. HEPATICA (Alpine Hepatica).—A beautiful early hardy flower. In shaded spots on porous soil the foliage will remain through the winter. The Hepatica is a deep rooter, hence it thrives so well upon made banks, and it will do as well as Primroses or Violets in any good garden soil. Where let alone, and not often pulled to pieces, it makes strong tufts. Then there are the single white; single red; double blue, rich in colour; *Barlowi*, a rich-coloured sport from the single blue; *splendens*, a single red; *lilacina*, a pretty mauve kind; and some others—every variety being worthy of culture. I prefer the single wild blue kind to any.

A. JAPONICA (Japan Anemone).—A tall autumn-blooming kind, 2 feet to 4 feet high, with fine foliage and large rose-coloured flowers. The variety named Honorine Jobert, with pure white flowers, is a beautiful plant; and all good forms of the plant should be cultivated where cut flowers are required in autumn. By having some on a north border, and some on a warm one, the bloom may be prolonged. The secret of success seems to be to prepare at first a deep bed of rich soil, and to leave the plants alone. They abhor frequent disturbance.

The various forms of the Japan Anemone are useful for borders, groups, fringes of shrubbery in rich soil, and here and there in half-shady places by wood walks. I like best the single forms.

A. NEMOROSA (Wood Anemone).—In spring this native plant adorns our woods,

Anemone japonica alba.

and also those of nearly all Europe and N. Asia, but so abundant in the British Isles that there is no need to plead for its culture. There are double varieties, and the colour of the flower is occasionally lilac, or reddish, or purplish. A sky-blue variety, *A. Robinsoniana*, is of easy culture and much beauty, especially if seen when the noon-day sun is on the flowers. It is useful for the rock garden in wide-spreading tufts, or for the margins of borders, or as a ground plant beneath shrubs, or for the wild garden or for dotting through the grass in the pleasure-ground in spots not mown early. Other forms worth growing are *Connubiensis*, the blue wild Welsh form, and a large white form. There are also other blue forms raised, though not yet proved, *Alleni* and Bluebonnet and *purpurea*.

A. PALMATA (Cyclamen-leaved Anemone).—A distinct kind, with leathery leaves and large handsome flowers in May and June, glossy yellow, only opening to the sun. Native of N. Africa and other places on the shores of the Mediterranean. Planted in deep turfy peat, or light fibrous loam with leaf-mould, not on the face of rocks, but rather on level spots, where it can root deeply and grow into strong tufts There is a double variety. Division or seeds.

A. PULSATILLA (Pasque-flower).—There are few sights more pleasant to the lover of spring flowers than the Pasque-flower just showing through the dry grass of a bleak down on an early spring day. It is smaller in a wild than in a cultivated state, forming in the garden strong healthy tufts, but it is one of the plants more beautiful

Pasque-flower (*Anemone pulsatilla*).

in a wild state than in a garden. I grow it freely as an edging plant. There are several varieties, including red, lilac, and white kinds, but they are not common, and there is also a double variety. *A. p. rubra* is of vigorous habit, whilst *A. pulsatilla Van der Elsh*, a recent introduction, with clear rose flowers, is also a valuable addition.

A. RANUNCULOIDES (Yellow Wood Anemone).—Not unlike the Apennine and the Wood Anemone in habit, this is distinct in its yellow flowers in March and April. It is S. European, and less free on common soils than the Apennine A., and is happier on chalky soil.

A. RUPICOLA (Rock Windflower).—For sheer beauty this species ranks with the choicest of its race, the flowers comparable only perhaps to the alpine Windflower (*A. alpina*) in their shell-like form, substance, and velvety texture. They are of a snowy whiteness, in pleasing contrast with the clusters of yellow stamens. The outer petals are tinged with pale blue, the colour early attracting the cultivator. Less than a foot high, the glistening cups rising well above the foliage are protected from harm by a spreading tuft of pale green much-divided leaves, which also constitute a perfect setting for the flowers. Happily the plant is easily cultivated in light loam, leaf soil, and grit. A first-rate plant in every way, it is at home in the rock garden in a sunny position and a good depth of soil. Perfectly hardy, it is readily increased by seeds or division of the roots. Native of China, where it was discovered by Mr George Forrest.

A. STELLATA (Star Windflower).—The star-like flowers of this, ruby, rosy, purple-rosy, or whitish, vary in a charming way, and usually have a large white eye at the base, contrasting with the delicate colouring of the rest of the petals. It is not so vigorous as the Poppy A., and requires a sheltered warm position, a light, sandy, well-drained soil. Division and seeds. Syn. *A. hortensis*. S. Europe

A. SYLVESTRIS (Snowdrop Windflower).—A handsome plant, about 15 inches high, with large white flowers in spring and beautiful buds. Hardy and free on all soils, but fails to bloom on some cool soils. The aspect of the drooping, unopened buds suggested its English name—the Snowdrop Anemone. Division and seeds. *A. sylvestris major* is the best form.

The previously named Anemones are the most beautiful of the family, which, however, contains many other interesting plants, but many of the higher alpine kinds are grown and increased with difficulty, and only in carefully chosen situations. Some, again, however distinct as species, are not strikingly so in gardens, and for the flower gardener the best way is to make good use of the proved species, among which *A. rivularis* may take a place by a streamlet.

ANOMATHECA (*Flowering Grass*).—*A. cruenta* is a pretty little South African bulb of the Iris order, from 6 to 12 inches high, flowers ½ inch across, carmine, crimson, three of the lower segments marked with a dark spot; in loose clusters on slender stems and grass-like leaves. Hardy on warm soils, but in others it should be planted on slopes, in very sandy dry soil, or on warm borders; the bulbs planted rather deep. In many soils it increases rapidly.

ANOPTERUS GLANDULOSA (*Tasmanian Laurel*).—A vigorous evergreen shrub with dark, shining green leaves, bearing long, erect, terminal racemes of white cup-shaped flowers, resembling the blossoms of *Clethra arborea*, but larger. Tasmania.

ANTENNARIA (*Cat's-ear*).—Mostly hardy alpine or border flowers. *A. margaritacea* is a North American plant, 2 feet high, with flowers in clusters, white and chaffy, hence kept in a dry state and dyed in various colours. The pretty but rare *A. triplinervis* from Nepal is closely allied to this plant. The Mountain Cat's-ears, *A. dioica* and *A. alpina*, and such forms as *A. minima*, are neat little plants with whitish foliage, used as carpeting. All are of simple culture in ordinary soil in exposed positions.

ANTHEMIS (*Rock Camomile*).—Vigorous perennials and rock plants. Of the kinds in cultivation, *A. Aizoon* is a dwarf silvery rock plant, 2 to 4 inches high, with Daisy-like flowers. *A. Kitaibeli* is pretty in the mixed border, with large, pale, lemon-coloured, Marguerite-like flowers. *A. tinctoria* is similar, and both are excellent for cutting, growing very freely in ordinary soil. The double-flowered form of the Corn Camomile (*A. arvensis*) is sometimes cultivated among annual plants. *A. Macedonica* is a neat species with white flowers, excellent as a rock garden plant.

Anthemis Macedonica.

ANTHERICUM (*St Bruno's Lily*).—Bulbous plants of the Lily family, containing a few species hardy in this country. These are the European kinds, among the most beautiful of hardy flowers. *A. Hookeri* (Syn. *Chrysobactron*) is a distinct New Zealand plant, 15 to 20 inches high, with bright yellow flowers, in long spikes in early summer. It grows best in moist, deep soils. *A. Liliago* (St Bernard's Lily) is about 2 feet high, with white flowers in early summer. *A. ramosum* has flower-stems about 2 feet high, much branched, and small white flowers. *A. Liliastrum* (St Bruno's Lily) is a graceful alpine meadow plant in deep, free, sandy soil, in early summer throwing up spikes of snowy-white Lily-like blossoms. Division of the roots in autumn, or it may be raised from seed. The major variety of the St Bruno's Lily has much larger flowers. It grows 3 feet high in good soil, and is a fine border plant.

Replant when dormant. Increased by division and seeds.

ANTHYLLIS (*Silver Bush*).—Dwarf mountain plants of the Pea family, of which there are some half a dozen species in cultivation. As far as now known, few are worth growing on the rock garden.

A. MONTANUS, the Mountain Kidney Vetch, is a very hardy rock plant; dwarf, about 6 inches high, the leaves pinnate, and nearly white with down, the pinkish flowers in dense heads, rising little above the foliage, and forming with the hoary leaves pretty little trailing tufts. I have never seen any alpine plant thrive better on the stiff clay of North London. Resisting any cold or moisture, it is among dwarf plants of the first order of merit as a rock plant. The variety *rubra* has darker red flowers. Alps of Europe. Division and seeds.

A. BARBA-JOVIS (Jupiter's Beard) is a shrubby plant of erect growth, with silvery, silky leaves and creamy-yellow flowers in spring. Coming from Spain, it is suited to a hot, dry place in the rock garden, and in cold places is sometimes grown against a wall.

A. ERINACEA is a singular-looking, much-branched, tufty, spiny, almost leafless shrub, about 1 foot high, with purplish flowers.

A. HERMANNIÆ.—Not so pretty in colour, is a grey bush of pleasant aspect, flowering in summer and fitted for a sunny place in the rock garden. S.W. Europe.

ANTIRRHINUM (*Snapdragon*). — A numerous family of rock plants and perennial herbs, mostly hardy and many of them from mountainous regions, but none so popular in gardens as the Snapdragon (*A. majus*), which, like the Wallflowers, often grows on walls and stony places. There are many species, but they do not take a large place in gardens, among the best being *A. Asarina* and *A. rupestre*. Of the common Snapdragon, the garden varieties are now numerous, and often showy in effect, the best being the pure colours. Sandy and free soils suit them. They are sown: (1) in August in the place where they are to grow, or preferably in seed-beds, in which latter case plant close to a south wall, sheltering from continued frosts with dry leaves or straw, planting out in spring 16 inches to 24 inches apart; (2) in July, in seed-beds in a well-exposed position, planting out the seedlings in the spring; (3) in seed-beds (March to April) at the foot of a south wall. By means of successive sowings it is possible to obtain an almost uninterrupted bloom from June until frost comes. They are also propagated by cuttings made in the spring or summer, and even during the whole of flowering time.

APIOS TUBEROSA (*Ground Nut*).—A graceful tuberous-rooted perennial of twining habit, with leaves cut into five lance-shaped leaflets, and fragrant brown flowers in dense clusters from July to September. It climbs over bushes to a height of 4 to 8 feet, and may be planted to cover a trellis or to roam among the shrubs at the back of a sunny rock garden, several tubers being planted together to secure the best effect. To do well the soil should be light and warm, with full sun and some shelter. The roots are eaten in winter by the Indians. N. America.

APONOGETON (*Cape Pond-flower*). —*A. distachyon* is a beautiful and fragrant water-plant from the Cape of Good Hope, hardy in many parts of these islands. Near London, during severe winters, it is interesting to see

Aponogeton (Cape Pond-flower).

the profuse bloom of this plant in spring, and in cold districts it is necessary, for its perfect culture in the open air, to grow it in spring or other water that does not freeze; in mild districts this is not needed. Failures often result from putting it in too shallow water. There is a rosy-tinted variety (*roseus*).

AQUILEGIA (*Columbine*). — Alpine, rock, and meadow perennials of the Buttercup order, often beautiful and widely distributed over the northern and mountain regions of Europe, Asia,

and America. Of great variety in colour—white, rose, buff, blue, and purple, and also stripes and intermediate shades, the American kinds

A Columbine.

having yellow, scarlet, and most delicate shades of blue flowers. Frequently taller than most of the plants strictly termed alpine, they are true alpine plants, and among the most singularly beautiful of the class. On the sunny hills of the Sierras in California, one meets with a large scarlet Columbine, that has almost the vigour of a Lily, and in the mountains of Utah, and on many others in the Rocky Mountain region, there is the Rocky Mountain Columbine (*A. cærulea*), with its long and slender spurs and lovely cool tints, and there is no family that has a wider share in adorning the mountains. The rarer alpine kinds should be planted in sandy or gritty though moist ground, and in well-drained ledges in the rock garden, in half-shady positions or northern exposures. Most rare Columbines fail to form enduring tufts in our gardens, and they must be raised from seeds as often as good seed can be got. It is the alpine character of the home of many of the Columbines which makes the culture of some of the lovely kinds so uncertain, and which causes them to thrive so well in the North of Scotland while they fail in our ordinary dry garden borders. No plants are more capricious; the charming *A. glandulosa*, grows like a weed at Forres, in Scotland, and is so short-lived in most gardens. The best soil for them is deep, well-drained, rich, alluvial loam. As probably many of the species are biennial, it is necessary to raise them from seed frequently; and to avoid the results of crossing it is better to get the seed, if we can, from the wild home of the species. Sow early in spring, and prick the young plants out into pans or into an old garden frame as soon as they are fit to handle, removing them early in August to the borders. Choose a cloudy day for the work, and give them a little shading for a few days.

A. ALPINA (Alpine C.).—A beautiful high mountain plant 1 foot to 2 feet high, with showy blue flowers, and there is a lovely variety with a white centre to the flower. In the rock garden it should have a rather moist and sheltered, but not shady, spot in deep sandy loam or peat. Seed or division.

A. CALIFORNICA (Californian C.).—One of the finest of the American species, with one bold woody stem, 3 feet high, and bright orange flowers. The seeds should be carefully looked after, as having once blossomed the old plant may perish. Thrives best on a deep sandy loam and moist.

A. CANADENSIS (Canadian C.).—The flowers are smaller than the W. American kinds. This is compensated for by the

brilliancy of the scarlet colour of the sepals and of the erect spurs, and by the bright yellow of the petals. The true plant is a slender grower, 1 foot in height. A plant for borders, or placing here and there among dwarf shrubs and plants in the rougher parts of the rock garden.

A. CHRYSANTHA (Golden C.).—This tall and beautiful species is perennial on many soils where the other kinds perish, thriving even on the stiff clay soils north of London. It comes true from seed, which is most safely raised under glass.

A. CŒRULEA (Rocky Mountain C.).—This is very beautiful, the green-tipped spurs of the flower being as slender as a thread, and having a tendency to twist round each other. It is hardy, flowering early in summer, from 12 inches to 15 inches high, worthy of the best position on the rock garden, and in choice mixed borders, where the soil is free and deep. Unlike the Golden Columbine, it is not perennial on many soils, though longer-lived in cool hill gardens. To get healthy plants that will flower freely, seeds should be sown annually.

A. GLANDULOSA (Altaian C.).—A beautiful plant of tufted habit, flowering in early summer—a fine blue, with tips of petals creamy-white, the spur curved backwards towards the stalk, the sepals dark blue, large, with a long footstalk It is a native of the Altai Mountains, and one of the most precious flowers for the rock garden, in deep sandy soil. Seed and division.

A. SKINNERI (Skinner's C.).—A distinct plant, the flowers produced later on slender pedicles, the sepals greenish, the petals small and yellow; the spurs are 2 inches long and bright orange-red. Though from Guatemala, it comes from mountain districts. and is nearly hardy. While the name is often seen, the true plant is rare.

A. VIRIDIFLORA.—A fragrant Siberian Columbine, the sage-green of the flower and the delicate tint of the leaf offering a delicate harmony. In the border it may not be noticed, but if a spray or two are put in a glass its beauty is seen. Seed.

A. VULGARIS (Common C.).—There are many forms of this, and double kinds; flowering from May till towards the end of summer. Its varieties, and some hybrid forms, may well be used in the more picturesque parts of large pleasure grounds, by streams and in copses.

ARABIS (*Rock Cress*).—A large family of hill-plants, few of which are grown. *A. albida* (White Rock Cress) will grow in any soil, where its sheets of snowy bloom may open in early spring. The double white form is a favourite. Both are easily increased by seed or cuttings, and are useful for the mixed border, the spring garden, and for naturalising in bare or rocky spots. There is now a pale rose form. It is closely allied to the alpine Rock Cress (*A. alpina*), so widely distributed on the Alps, but is distinct, and the best kind. A variegated form is the dwarfest and whitest of the Rock Cresses. *A. blepharophylla* (Rosy Rock Cress) is not unlike the white Arabis, but the flowers are rosy-purple. It varies a good deal, but there is no difficulty in selecting a strain of the deepest rose, its healthy tufts being effective in April. *A. arenosa*, from the south of Europe, is a pretty annual in the spring garden or naturalised on old ruins or dry bare banks. *A. petræa*, a neat, sturdy little plant, with pure white flowers, is a native of some of the higher Scottish mountains, rare, but very pretty when well grown on a moist well-exposed spot on the rock garden. *A. Stelleri*, a Chinese species, is a much freer flowering plant than *A. blepharophylla*, ripening seed freely, and easily grown in the rock garden.

ARALIA.—Shrubs or stout herbaceous plants of the Ivy order, of diverse aspects, few fitted for open air, except *A. canescens* and *A. spinosa*, which thrive in our gardens, and which in size and beauty of leaf are far before many "fine-foliaged plants" grown in hothouses. The Aralias described are now placed under Fatsia, but we retain the older name as better known in gardens. *A. papyrifera* (Chinese Rice-paper Plant), though a native of the hot island of Formosa, is useful for the greenhouse in winter and the flower garden in summer. It is handsome in leaf, but is only suited for southern or very warm gardens.

A. CHINENSIS.—A hardy shrub, with very large, much-divided, spiny leaves, resembling those of the Angelica Tree of N. America. In this country it attains the height of from 6 to 12 feet. In deep loam it thrives vigorously. May be useful in a garden where tender fine-leaved plants will not thrive. Syn. *Dimorphanthus mandschuricus*.

A. SIEBOLDI.—A shrubby species, with fine green leaves, nearly hardy, and a handsome bush on dry soils and near the sea. It may be used in the flower garden or the pleasure ground, but it soon turns yellow and unhappy looking if exposed to much sunshine. It is hardier in the shade, its foliage browning badly if caught too suddenly by the sun after hard frosts. Syn. *Fatsia Japonica*.

A. SPINOSA (Angelica Tree).—This fine shrub has often been put in exposed places, but it is better where its great leaves will

Aralia spinosa.

not be torn, and in every size may be used in the pleasure ground. Its small white flowers appear in autumn in great panicles. Cuttings of the roots. N. America.

ARAUCARIA (*Monkey-Puzzle*).—A noble group of cone-bearing trees, most of them too tender for our winters. *A. imbricata* is a native of Chili, and the only species which does at all well on high ground. It was killed by thousands in the nurseries and gardens in the severe winter of 1860, and it is no way suitable for the garden, being a forest tree of a climate very different from ours.

ARAUJIA SERICOFERA.—A bold and distinct evergreen climber, not hardy everywhere, but where it succeeds in a southern county flowers, and in late summer bears curious fruits. Syn. *Physianthus albens.* S. America.

ARBUTUS (*Strawberry Tree*).—Evergreen shrubs of much beauty, both of flower and form of leaf or bush, coming from warmer countries thrive best on our sea-shore or warmer districts. The beautiful *A. Unedo* grows 20 feet high or more in the coast districts, but inland it is cut down in severe winters. There are varieties of it, one of the best being *A. Croomei,* which has longer and broader leaves than the common kind. The variety *rubra* has almost bright scarlet flowers in autumn. S. Europe, and also wild in the south of Ireland. The other species are not so important as flowering trees, though good evergreens where they will face the climate. *A. Andrachne,* with smooth, ruddy-tinged bark, is hardy in the south and coast districts. It grows wild in Greece, and is a very old tree in gardens. The fine Californian *Arbutus Menziesii* is hardy with us. These shrubs succeed best in a deep light

Aralia chinensis.

loam, and will thrive on chalky soils much better than many other evergreen shrubs. In the south and west of England, and in Ireland, the fruits are freely borne.

ARCTOSTAPHYLOS (*Bear-berry*).—Mostly trailing alpine evergreen of the Heath order, of which few are in culti-

vation. Of this group *A. alpina* is useful for rocky banks or edging bog-beds. *A. Uva-ursi* (Bear-berry) is a dwarf evergreen mountain shrub, 1 foot high, sometimes grown with rock plants. It has small rose flowers in early summer and red berries in autumn. *A. alpina*, the Black Bear-berry, has trailing stems and white or flesh-coloured flowers. It is abundant in hilly places in Europe and N. America. Grows in any soil, but prefers a moist border or ledge. Division. *A. nitida* is a Mexican half-hardy evergreen with shining green leaves and white flowers. The dwarf, much branched *A. pungens* is also a native of Mexico; while the shrubby, hardy *A. tomentosa* comes from N.W. America.

ARCTOTIS. — Showy half-hardy plants from the Cape, numbering between forty and fifty species, for the most part little known. The bright colours of many are more intense in the open air than when the plants are cramped in pots in a greenhouse. Dry sunny banks often devoid of plant life might be clothed with them. Although true sun-loving plants, they may be used as a groundwork in spots where, in the shade if not too dense, they flower almost as freely as in the sun. They require warm greenhouse treatment in winter.

A. ACAULIS is a variable dwarf species; the flowers are large, attractive, and of a deep rich orange. It does not ripen seed freely, but is easily propagated from side shoots.

A. ASPERA is a half-shrubby species, with deeply cut and wrinkled leaves and creamy flowers, purplish outside. It may be used in vases and hanging baskets, the pink buds being pretty. Cuttings strike readily in heat.

A. GRANDIS.—A handsome kind from the Cape, with grey or silvery leaves and stems, and showy white flowers, 2 inches or more across, with a gold-banded pale mauve centre, and shaded with lilac on the outside. It forms a bushy plant of about 2 feet high, flowering freely and through a long season, and the long-stemmed flowers are useful for cutting if gathered on first expanding, though they close up each evening. Seed should be sown under glass in early spring, and the seedlings planted in rich light soil and in the hottest part of the garden, as soon as danger from frost is over.

A. LEPTORHIZA.—A showy annual, with rich orange flowers, as is also *A. breviscapa*, which likes a sunny position. The seeds may be sown in the open air, the plant being treated as a hardy annual. A sunny spot should be chosen, and the seedlings well thinned.—K.

ARENARIA (*Sandwort*).—A numerous family of rock and mountain plants, of vast distribution over northern and alpine ranges, and in temperate countries. Few kinds are in gardens, and these are dwarf plants, easy to grow.

A. BALEARICA (Creeping Sandwort).—A pretty little plant, which covers rocks and stones with verdure, and scatters over the green mantle countless white starry

Mountain Sandwort (*Arenaria montana*).

flowers. Plant firmly in any common soil near the stones or rocks it is to cover, and it will soon begin to clothe them. Flowers in spring. Division. Corsica.

A. MONTANA (Mountain Sandwort).—A good rock plant, with fine large white flowers. It is the best of the large Sandworts, and should be in every collection of rock plants, being hardy and free. France. Seed or division.

A. NORWEGICA is one of the best kinds, forming dense cushions about 6 inches in diameter, and covered with large white flowers throughout the summer. A fine alpine plant. Norway.

A. PURPURASCENS (Purplish Sandwort).—An interesting kind with purplish flowers, on a dwarf tufted mass of smooth-pointed leaves. It is plentiful over the Pyrenean Mountains. Seed or division. It should be associated in the rock garden with the smallest plants.

ARETHUSA.—*A. bulbosa* is a beautiful American hardy Orchid, which grows in wet meadows or bogland, blossoming in May and June. Each plant bears a bright rose-purple flower that shows well on its bed of Sphagnum, Cranberry, and Sedge. The little bulbs grow in a mossy mat formed by

the roots and decaying herbage of plants and moss. A shady moist spot with a northern exposure is best, and the soil should be a mixture of well-rotted manure and Sphagnum.

ARGEMONE (*Prickly Poppy*).—Handsome Poppy-like plants, said to be perennial, but perishing on moist soils after the first year. As they come from the warmer parts of California and Mexico, and even there grow on dry hill-sides and in warm valleys, their perishing here may be understood. Usually about 2 feet high, they have large white flowers 4 inches across, with a bunch of yellow stamens in the centre. They require a warm loam, and go with the choicest annual flowers. Mostly grown are *A. mexicana*, *A. grandiflora*, and *A. hispida*; so much alike in habit as not to need separate description. Seed end of April in open.

ARISTOLOCHIA (*Dutchman's Pipe*).—Climbing Birthworts of curious form of flower, and effective in foliage. *A. Sipho* is generally used as a wall-plant, but is finer for covering bowers, or for clambering up trees or over stumps. *A. tomentosa* is smaller, distinct in its tone of green, and useful in like ways; both plants are N. American, growing with freedom in ordinary garden soil. The family is a large one, mainly tropical, but some of the forms go into northern countries. Cuttings.

ARISTOTELIA.—*A. macqui* is a hardy Chilian shrub of the Lime Tree family, chiefly esteemed for its handsome evergreen foliage. The pea-like berries are at first dark purple, but eventually black. Commoner in southern Ireland than in England.

ARMERIA (*Thrift*).—Rock and shore plants of the Statice order, of which the best known is the common *A. vulgaris* (Thrift). This native of our shores, and of the tops of the Scottish mountains, is very pretty, with its flowers of soft lilac or white springing from cushions of grass-like leaves; but the deep rosy form, rarely seen wild, best deserves cultivation. It is useful for the spring garden, for banks or borders in shrubberies, for edgings, and for the rock garden, and is easily increased by division. As old plants do not bloom so long as young ones, occasional replanting is desirable. In addition to the white variety and the old dark red one, there are *Crimson Gem* and *Laucheana*, the flowers intense pink. *A. cæspitosa* is a rose-coloured kind from the south of Europe, 5000 to 8000 feet above sea-level. Its flower-heads, each from ¾ inch to 1 inch in diameter, are borne on slender stems 1 to 2 inches high from June to September. *A. cephalotes* (Great Thrift)

The Tufted Thrift (*Armeria cæspitosa*).

is one of the best hardy flowers from S. Europe, and should be in every collection. *A. setacea* is an alpine species, with little globose heads of pink flowers so numerous as almost to conceal the plant on flower-stems from 1 to 3 inches high. This and *A. juncea* are found in the south of France on barren stony mounds.

ARNEBIA (*Prophet-flower*).—A handsome and distinct perennial, 1 foot to 18 inches high. *A. echioides* has flowers of a bright primrose-yellow, with five black spots on the corolla, which gradually fade and finally disappear. It is hardy either on the rock garden or in a well-drained border, and prefers partial shade. A native of the Caucasus and Northern Persia, and though long introduced is still among the rarest of hardy flowers. Young plants bloom long, which adds to their charms. Increased by seeds and by root cuttings in winter.

ARNICA (*Lamb's-skin*).—A small group of perennial herbs of the Daisy order, with clustered leaves and neat yellow flowers on long stems. They do well in the rock garden or border, in open sandy soils. Increase by division, or seed when obtainable. *A.*

Chamissonis from N. America is a pretty plant of 1 to 2 feet, with woolly leaves and yellow flowers 2 inches across, from July to September. *A. montana* (Mountain Tobacco) is a European plant about 12 inches high, with smooth, lance-shaped leaves and yellow flowers 2 inches across in summer, the blooms gathered into threes and fours on hairy stems. This pretty rock plant is of slow growth, and should have a place in sandy peat and partial shade. *A. foliosa*, from the Rocky Mountains, is not unlike the last, but taller, with smaller flowers, and needs a damp place. *A. sachalinensis* from the Far East grows 18 inches high, with abundant yellow flowers.

ARONIA.—A group of shrubs allied to Pyrus, but distinct in aspect, and when grouped effective in colour, but so fragile that mixed in the ordinary way they give little effect, whereas massed they are charming both in flower and in fine colour of leaf in autumn. Three kinds of easy culture are *nigra*, *arbutifolia*, and *floribunda*.

ARTEMISIA (*Wormwood*). — Herbs and low bushes covering a large part of the surface of northern and arid regions. Though often poor weeds, some have a use in gardens, though rarely for their flowers. *A. anethifolia* is one of the most elegant herbaceous perennials, 5 feet in height. *A. annua* is a graceful plant with tall stems 5 or 6 feet high, the foliage fine, and the flowers not showy in elegant panicles. The hue is a fresh and pleasing green, and the plant is a graceful centre of a flower-bed or group. Other kinds, like *A. alpina* and *A. frigida*, belong to an alpine group, which is at home in the rock garden, while there are many taller herbaceous and half-woody plants of a silvery hue, such as *A. Stelleriana*, *A. cana*, *A. maritima*, and some with handsome Fern-like foliage, as *A. tanacetifolia*.

ARUM (*Cuckoo Pint*). — Tuberous rooted plants of distinct form; some are hardy. They thrive best in warm borders and about the sunny side of garden walls. Some nine or ten kinds are found in S. Europe. They have, when in bloom, a very offensive odour.

A. CRINITUM (Dragon's Mouth).—In flower this is very grotesque, from the singular shape of its broad speckled spathe. The leaves are cut into deep segments, and the leaf-stalks overlapping each other, form a sort of spurious stem 1 foot or 14 inches high, marbled and spotted with purplish-black.

A. DRACUNCULUS (Dragons, Snake Plant), from S. Europe, attains a height of 2 to 3 feet; the leaves large; the stalks and stem of a fleshy colour, deeply mottled with black. It loves best a corner to itself in sandy loam at the foot of a south wall. Has a disagreeable odour. Division.

A. ITALICUM (Italian Arum) is larger than our native Arum; the veins blotched with yellow. As the leaves come very early in the season, they are attractive. In the autumn, when they have died away, the clusters of scarlet berries, on footstalks 10 inches or 12 inches long, are showy.

ARUNDO (*Great Reed*).—Important grasses of fine form, sometimes of great height. *A. conspicua* (New Zealand Reed) is a grass of noble form—a companion for the Pampas Grass, especially in the western and southern countries and on light soils. In fine deep loams it reaches a height of nearly 12 feet, but perishes from cold or other causes on many soils. It flowers earlier than the Pampas Grass. It likes plenty of water nearly all the year round, and may be increased by seeds or division. *A. Donax* is the "Great Reed" of the south of Europe, a noble plant on good soils, in the south of England making canes 10 feet high, in rich soil, but in our country it has suffered much in recent severe winters. *A. Phragmites* (Common Reed) is the native marsh plant, 6 feet or more high, bearing when in flower a large, handsome, spreading, purplish panicle. It is an excellent cover for water birds.

ASARUM (*Asarabacca*).—Curious little plants resembling Cyclamens in their leaves, but of little value except as curiosities. *A. canadense* is the Canadian Snakeroot, which bears in spring curious brownish-purple flowers, the roots being strongly aromatic, like Ginger. *A. virginicum* is the Heart Snakeroot, its leaves thick and leathery, with the upper surface mottled with white. *A. caudatum* is from Oregon, and much like the others in habit, but the divisions of the flower have long tail-like appendages. *A. europæum* is the Asarabacca, the flowers greenish, about ½ inch long, and close to the ground.

ASCLEPIAS (*Milk-weed, Silk-weed*). —A large genus of strong-growing

herbaceous perennials, few of them adapted for the flower garden, as they require a good deal of room, and are not attractive. They thrive in a light or peaty soil, and may be increased by division. *A. acuminata* has red and white flowers. *A. amœna*, purple; *A. Cornuti* (the common Milk-weed)—also known as *A. syriaca*—grows vigorously to a height of 4 feet, and bears umbels of deep purple fragrant flowers, of which bees seem to be fond. *A. incarnata* (the Swamp Milk-weed) is a good waterside plant with rose-purple flowers. *A. quadrifolia* (Four-leaved Milk-weed) bears fragrant terminal heads of lilac-white flowers early in the summer. *A. purpurascens* is also a waterside plant with purple flowers. *A. rubra* (the Red Milk-weed) is a distinct tall-growing plant with long bright green foliage, and large umbels of purple-red flowers. *A. tuberosa* (the Butterfly Silk-weed) is the prettiest species, with its clusters of showy bright orange-red flowers in the autumn. Good flowering plants may be obtained from seed in three years, but is mostly increased by dividing the tubers. This species thrives in sandy soil.

Arum crinitum (Dragon's Mouth).

ASIMINA (*Virginian Papaw*).—A N. American shrub, or low tree of the Custard Apple family. *A. triloba* forms a small tree, with dull purple flowers, about 2 inches across. It bears fruit eaten by the inhabitants of the Southern States; hence the name. Sometimes grown against a wall in

this country, but hardy in the southern counties.

ASPARAGUS.—Herbaceous plants or climbers of the Lily order, of fine habit with elegant leaves. The vigorous and tall *A. Broussoneti* is quite

A Climbing Asparagus.

hardy in warm sandy soil, and so are *A. tenuifolius* and others. The common Asparagus is as good as any, and a tuft or group of it is graceful in a border of flowers or a bed of fine-leaved plants.

ASPERULA (*Sweet Woodruff*).—*A. odorata*, which belongs to the same family as the Coffee Plant, is abundant in many parts of Britain, and worthy of the garden or shrubbery, especially in districts where it does not occur wild. Its stems and leaves give off a fragrant hay-like odour when dried; and in May the small white flowers, dotted over the tufts of whorled leaves, are pretty. *A. azurea setosa* (*A. orientalis*) is a pretty hardy blue annual, flowering in April and May. Sow seed in the previous autumn. *A. cynanchica* is a rosy-red perennial, and a good bank or rough rock-plant. *A. hexaphylla* is a tall slender white-flowered species.

ASPHODELINE. — Plants nearly allied to the following, but the stems of Asphodelus are leafless, while in Asphodeline the leaves are produced on erect stems. About six kinds are in cultivation, the best known being *A. lutea*, which grows about 3 feet high, with yellow flowers in dense clustered spikes. *A. taurica* has white flowers, on stems 1 to 2 feet high. *A. liburnica* (*A. cretica*) and *A. tenuior* have yellow flowers in loose racemes. *A. damascena* has white blossoms in dense racemes, and *A. brevicaulis* has yellow flowers in loose racemes. These all thrive in ordinary soil.

ASPHODELUS (*Asphodel*).—Tuberous plants of the Lily order, with spiked flowers, and not of a high order of beauty, thriving in any free garden soil. The best known is the bold *A. ramosus*, a S. European species, familiar in most old herbaceous plant borders. Other kinds are *A. fistulosus* and *tenuifolius*, with white flowers, the plant growing from 1½ to 3 feet high. The last-named kind has delicate feathery foliage. *A. creticus*, the Cretan Asphodel, has yellow flowers, and is an easily cultivated border plant.

ASPIDIUM (*Shield or Wood Fern*).—This family now embraces the Polystichum and some species of Lastrea. There are numerous hardy kinds, among them the Male Fern (*A. Filix-mas*) and the Prickly Shield Fern. Either alone or in groups they have a fine effect, as an undergrowth to trees in the pleasure garden or in the shadier parts of the garden, and are evergreen. There are no fewer than a hundred named sorts of *A. aculeatum* and fifty of *A. Filixmas* being enumerated in trade lists. The smaller and more delicate kinds require some care. *A. aculeatum* is best in rich loam, with sand and leaf-mould, well-drained, and so does the Male Fern. The border Ferns of this group give fine cool effects in rightly chosen spots in and near the flower garden.

ASPLENIUM (*Spleenwort*).—The fine dark green colour and free-growing character of most of the Spleenwort Ferns give them distinct value. The best soil for them is a well-drained mixture of peat, sand, and loam, in which the finer kinds of flowering shrubs, such as Kalmias and Andromedas, thrive. *A. Adiantum nigrum* (the Black Spleenwort) when wild,

fringes copses or is found on hedge-banks, where it gets a little protection from the summer sun. The various smaller species of this genus belong more to the choice fernery than to the flower garden, unless when we are happy in having old walls near or around it, often so congenial a home for the smaller rock-ferns.

ASTER (*Starwort, Michaelmas Daisy*). — Hardy perennial plants. There is a quiet beauty about the more select Starworts, which is charming in the autumn days, and their variety of colour, of form, and of bud and blossom is delightful. For the most part Starworts are regardless of cold or rain. Even where not introduced into the flower garden, they should always be grown for cutting; and they are excellent for forming bold groups to cover the bare ground among newly-planted shrubs. Nothing can be more easy to cultivate. The essential point is to get the distinct kinds, of which the following are amongst the best that flower in early October:—*Aster amellus, acris, cassubicus, turbinellus, Chapmani, versicolor, pulchellus, cordifolius, elegans, Reevesi, discolor, laxus, horizontalis, ericoides, Shorti, multiflorus, dumosus, Curtisi, lævis, longifolius, coccineus, sericeus, Nova-Anglæ, Novo-Belgii,*

Aster Stracheyi.

puniceus, and *vimineus*. Every year adds to our autumn-blooming hardy plants, and a choice of Starworts may be made by autumn visits to collections.

ASTILBE (*Goat's Beard*).—A vigorous group of chiefly tall-branching herbaceous perennials. The robust kinds resemble the Spiræas of the Aruncus group, but are bolder, and perhaps better suited for the margin of water. There are eight kinds in cultivation, the best known of which are *A. japonica* and *A. rivularis*. Moist places in the wild garden are most suitable for *A. decandra, A. rivularis, A. rubra, A. Lemoinei*, and *A. Thunbergi*, the last being also known as Spiræa. These plants group well, and the handsome foliage makes healthy undergrowth, over which the tall plumes of white or red flowers tower with good effect. The new hybrid Astilbes, raised by crossing *A. Davidii* and other species, are important gains, and may be used with good effect, particularly in cool or moist situations where a rich soil obtains. Their habit is that of an enlarged *A. japonica*, both in foliage and flower, the chief colours being pink, rose, salmon, and carmine. They are of a uniform height of 3 feet. *Ceres*, rosy-lilac; *Gloria*, rich rose; *Kriemhilde*, salmon; *opal*, purplish-pink; *Siegfried*, carmine; *Venus*, rosy-purple; *Queen Alexandra*, pink; and *Salmon Queen*, are a selection of the best. Division of the roots, and some by the runners.

A recently introduced kind is the vigorous and handsome *A. Davidii*, with crimson-purple flowers on stems about 6 feet high. It is a fine perennial. *A. Simplicifolia*, a new perennial Alpine species of the highest beauty and ornament from Japan. Rarely a foot high, with somewhat hairy, palinately lobed leaves in cushion-like form. It produces graceful pamiles of creamy white flowers in July and August with the greatest freedom.

ASTRAGALUS (*Milk Vetch*). — A large family of alpine and perennial leguminous plants, not many of which are valuable for the garden. The best are rock plants, but they grow freely on the level ground in borders. *A. monspessulanus* is useful for the front of borders and for the rock garden. The vigorous shoots are prostrate, so that it is seen to greater advantage when its long heads of crimson and rosy flowers droop over rocks. It grows well in any soil. There are several varieties. *A. Onobrychis* (Saintfoin Milk Vetch) is a handsome species from S. Europe and Siberia (in some varieties spreading, and in others about 18 inches high), with racemes of purplish-crimson flowers in June. It thrives well on any good loam. *A. dasyglottis* is well suited for the rock

garden. Its numerous showy flower-heads, of a clear bright purple, are set off by the fresh green foliage. *A. adsurgens* is dwarf, with numbers of violet-carmine flowers. *A. vaginatus* succeeds in an exposed position in any ordinary border. The showy deep violet-purple flowers are borne in dense erect clusters for a long time.

ASTRANTIA (*Master-wort*). — Umbelliferous plants, natives of the mountains of S. Europe. The most distinct are *A. major* and *A. helleborifolia*. *A. helleborifolia* is from the Caucasus, with the largest flower of any, the colour clear pink; but the habit of the plant is straggling, and the flowers smell unpleasantly of sour milk. The thrive in a little shade where protected from drying winds. There are many beautiful forms.

AUBRIETIA (*Purple Rock Cress*).—A charming group of rock plants from the mountains of S. Europe. There are many varieties in gardens, the majority descendants probably from *A. deltoidea*. Of these the best of the older sorts are *Campbelli, graca, grandiflora, Hendersoni*, and *violacea*. Some, like Dr. Mules, Beauty of Baden, Souvenir de W. Ingram, and *Leichtlini*, are of more recent date and higher garden value; while such as Lavender, Fire King, Aubrey Prichard, Prichard's A1, Violet Queen and Lloyd Edwards, represent the most recent additions to

Aster elegans (Lilac Starwort).

Astrantias have a quaint beauty of their own; they are not showy, nor particular about soil or aspect. They are easily established in woodland walks where the growth of weeds is not too rank.

ATHYRIUM (*Lady Fern*).—Beautiful hardy Ferns, which *A. Filix-femina* may be taken to represent. They like a compost of loam, leaf-mould, and peat, mixed in about equal proportions, with the addition of some sharp sand. They require abundance of water during their growing period, but not in winter, because all the varieties are deciduous, the ground at that period being wet enough naturally. Among many fine hardy evergreen and herbaceous plants Lady Ferns might be planted with advantage; they will

this valuable and easily-grown class of hardy plants.

The Aubrietia is excellent as a wall-plant. We need only sow the seed in any mossy or earthy chinks in autumn or spring; indeed they will sow themselves on walls, and often bloom on the sunny sides in February. Rock gardens, stony places, and sloping banks suit Aubrietias perfectly. They make neat edgings, and may be used as such with good effect. Aubrietias are easy to naturalise in rocky places, and may be easily got from seeds, cuttings (young unflowered pieces being the best), or by division.

AUCUBA (*Himalayan Laurel*).—A noble evergreen which came into this country in a curious way. Like the young man from the country fas-

cinated by the painted lady on the stage, the man who first brought it to this country selected a poor spotted form. People who love variegation were delighted with this for years, and it took long to find out the really good things under this name. As with so many other plants, variegation is a disease. The natural plant is the best evergreen yet introduced. It is fine in colour and hardier than the true Laurel, and has good qualities in all ways for garden or woodland. I began with the spotted kind, but, not loving variegation in any form, I went to a good nursery, where I picked out a number of green forms, which differed so much in leaf that I had the greatest pleasure in using them. Fully exposed, the foliage is very attractive, and the plant has the precious quality of growing under Pines or various trees in perfect health, and fruiting yearly. Where it fruits well, it is very pretty for indoor decoration. The natural plant varies much in form of leaf, and sometimes names are given to these forms, but they have little value. Where an evergreen covert is desired under trees it might be well to use Aucubas — it is so easily increased, that it would not be difficult to get a stock.

AZALEA (*Swamp Honeysuckle*).— Beautiful upland and bog shrubs from N. America, and, if only as a relief from the heaviness of Rhododendrons, their graceful growth is precious. Nothing in the open garden is so charming as old Azalea bushes in flower, with their branches in table-like tiers; but the brilliant tints always seem most effective in the subdued light of a shady wood, and happily few shrubs flower better in partial shade than Azaleas. They like shelter, even from southerly winds, and peaty soil suits them best, though they grow well in loam.

Purple Rock Cress (Aubrietia).

The hardy Azaleas, called Ghent Azaleas, have sprung chiefly from the wild kinds of N. America—*A. nudiflora*, *A. calendulacea*, and *A. viscosa*. These and *A. pontica* have been so hybridised with the wild Azalea of S. Europe that we have a race in which the colours of the various species are blended and diversified in a great variety of tints, and they all intercross so freely that it is difficult to single out a variety identical with any of the wild species. Fifty years ago, Latin names were given to every fine variety, but they could soon be numbered by the hundred from Belgian gardens alone. Now very few sorts are

named. Every variation of tint, from the most fiery scarlets to delicate pinks, whites, and dark and pale yellows, is to be had in Ghent Azaleas, a very beautiful one being the pure white Mrs Anthony Waterer. Of late years there has sprung up a new race with double Hose-in-hose flowers, collectively called the Narcissi-flora group, the chief sorts of which number about a score — Graf von Meran, one of

Flowers of *Azalea mollis*.

the first, being still among the best yellows. A Californian species, named *A. occidentalis*, is distinct from the deciduous Azaleas, as it flowers after the others are past. It has bunches of fragrant white flowers and broad foliage. *A. mollis*, a dwarf deciduous shrub from Japan and China, has given rise to a variety of kinds, yellow, salmon-red, and orange-scarlet being the prevailing colours. It is hardy, and being dwarf may be grouped as a foreground to a mass of the tall kinds. The Chinese *A. amœna*, with small magenta flowers, common enough in greenhouses, is quite hardy in mild localities and rich in bold masses. The Chinese *A. indica*, the ordinary Azalea of greenhouses, is hardy in many places, especially the white variety, which, even in mid-Sussex, thrives in the open air. The Ledum-leaved Azalea (*A. ledifolia*) is a hardy evergreen shrub, also from China, with white flowers, large and open, like *A. indica*. It grows from 5 to 6 feet high, and Loudon states that in Cornwall, on Sir Charles Lemon's estate at Carclew, it was planted in hedges, which flowered magnificently without the slightest protection. Though Azaleas are now in botanical books made synonymous with Rhododendrons, I have preferred to deal with them separately here.

AZARA.—Distinct and graceful Chilian shrubs, or low trees, nearly hardy in many parts. On east or west walls they flower freely; while in the southern counties, at least, they do well in the open. Well-drained loam and the partial shade of taller shrubs suit them. *A. Gillesi* is probably the most handsome, its toothed leaves resembling in colour and texture those of the Holly, with the branches tinged with red. Both in the open air and under glass it blooms in late autumn and winter, the flowers small, and resembling golden catkins. *A. celastrina* has rather smaller leaves, and yellow blossoms. *A. integrifolia* has drooping spikes of fragrant yellow blossoms, which form a dense bush a few feet in height. *A. microphylla* is a graceful evergreen shrub, with many small flowers, succeeded in autumn by small orange-red berries. Even quite near London it makes a good hedge, and its elegant sprays of glossy leaves are valuable for cutting in winter. Among other kinds are *A. dentata*, a quick grower; and *A. serrata*, with prettily serrated leaves, and umbels of yellow blossoms.

AZOLLA.—*A. Caroliniana* is a very small and curious water-plant, which floats on water quite free of soil, the tufts of delicate green leaves like tiny emeralds. During summer it will grow out of doors, and then becomes bronzed, and perhaps it is prettier when light green, as it is in the greenhouses or window. Syn. *A. rubra*. *A. pinnata* is a distinct species.

BABIANA (*Baboon-root*).—Bulbs of the Iris order, from S. Africa, allied to Sparaxis and Tritonia, but having broader foliage, often hairy and plaited; they grow from 6 to 12 inches high, with spikes of sometimes sweetly-scented brilliant flowers ranging in colour from blue to crimson-magenta. The bulbs should be planted from September to January, about 4 inches deep and 2 to 4 inches apart, in light loamy soil thoroughly drained, with a due south aspect. The early plantings make foliage in autumn, and require protection of mats against frost. Those planted later will only require a covering of Fern, which should be removed as the foliage

appears. In wet soils surround the bulbs with sand, and raise the beds above the level. Many varieties are in catalogues, but in the open air their growth is not satisfactory.

BACCHARIS. — Curious evergreen shrubs mostly from S. America, and not always hardy with us inland, though excellent for seaside places, where they thrive down to the water's edge. They do best in rather poor soils and upon dry stony banks, growing rapidly and giving distinct effect both of leaf and flower. The various kinds differ widely from one another, *B. halimifolia* (Sea Purslane), the best known, attaining a height of 6 to 12 feet. *B. patagonica* (Groundsell Tree) is handsome in foliage, with white flower-heads, borne in profusion. It is said to make an effective hedge-plant. *B. salicina*, a shrub of about 6 feet, from Colorado, comes near *halimifolia*, but is hardier. *B. Xalapensis* and *B. trimera* are seldom seen, but well worth a place in coast gardens.

BAMBUSA (*Bamboo*).—There are some forty or more varieties of these graceful woody grasses, which are hardy in all but the coldest parts of our islands, though best in sheltered places.

ARUNDINARIA RACEMOSA.—This grows about 15 feet high in its own country. Stem smooth and round. Internodes about 2 inches apart, leaves 2 to 4 inches in length and narrow, cross veins well defined. After the trying winter of 1895, quite green and fresh at Kew. Himalayas.

A. HUMILIS.—About 2 feet to 3 feet high, with round and green stem, bright evergreen leaves smooth on both sides, 4½ inches long, three-quarters of an inch broad, and tapering to a point. A very pretty plant to form a carpet or isolated group near rocks.

BAMBUSA PUMILA (Arundinaria).—A very pretty dwarf Bamboo somewhat like *Arundinaria humilis*, but smaller in habit, the leaves are less broad, shorter, and do not taper so gradually to a point. The teeth of the serrated edges are less conspicuous, and the lower sheaths are not so hairy.

ARUNDINARIA SPATHIFLORA.—Is one of the most graceful as it is also the most beautiful of this genus, its 15 feet wand-like stems laden with soft pale green leaves arching to the ground.

A. HINDSII.—A distinct and beautiful species. In its first year with me it has grown to a height of 6 feet 3 inches, but will evidently attain a greater stature. The young dark green stems have a lovely white wax on them like the bloom on a Grape. The leaves are 6 inches long by about five-eighths of an inch across; they are thicker than in most Bamboos.

A. JAPONICA.—A fine and valuable plant, generally grown in gardens under the name of *Bambusa Métaké*. The leaves are from 8 inches to 1 foot in length by about 1½ inches, sometimes more, broad. The upper surface is smooth and shining, the lower side paler, rather glaucous and wrinkled; the edges are finely serrated.

A. SIMONI.—Of this fine species, at Kew, old-established plants have reached a height of 18 feet. The leaves are from 10 inches to 1 foot long, slightly hairy, lanceolate, longitudinally ribbed, ending in a long narrow point. So far as experience at present goes, this is the greatest runner of all the hardy Bamboos. Its young shoots will appear at a great distance from the parent plant. It should be planted apart in the wild garden, where it may wander at pleasure without injury to any neighbour.

BAMBUSA PALMATA (Arundinaria).—A beautiful species, about 5 feet high, conspicuous from the size of its leaves, which are often used by Japanese peasants to wrap up the bit of salt fish or other condiment which they eat with their rice. These are the chief beauty of the plant, each from 1 foot to 13 inches long and 3 inches to 3½ inches broad, tapering rather suddenly to a very fine point; the colour a vivid green on the upper surface, glaucous on the lower.

B. TESSELLATA. — A very beautiful species having the largest leaves of any of the hardy Bamboos. The stem is about 2½ feet high, round, slightly flattened at the top, the colour a purplish-green, much hidden by persistent withered sheaths. The slender new culms spring gracefully from the carpet of arching foliage.

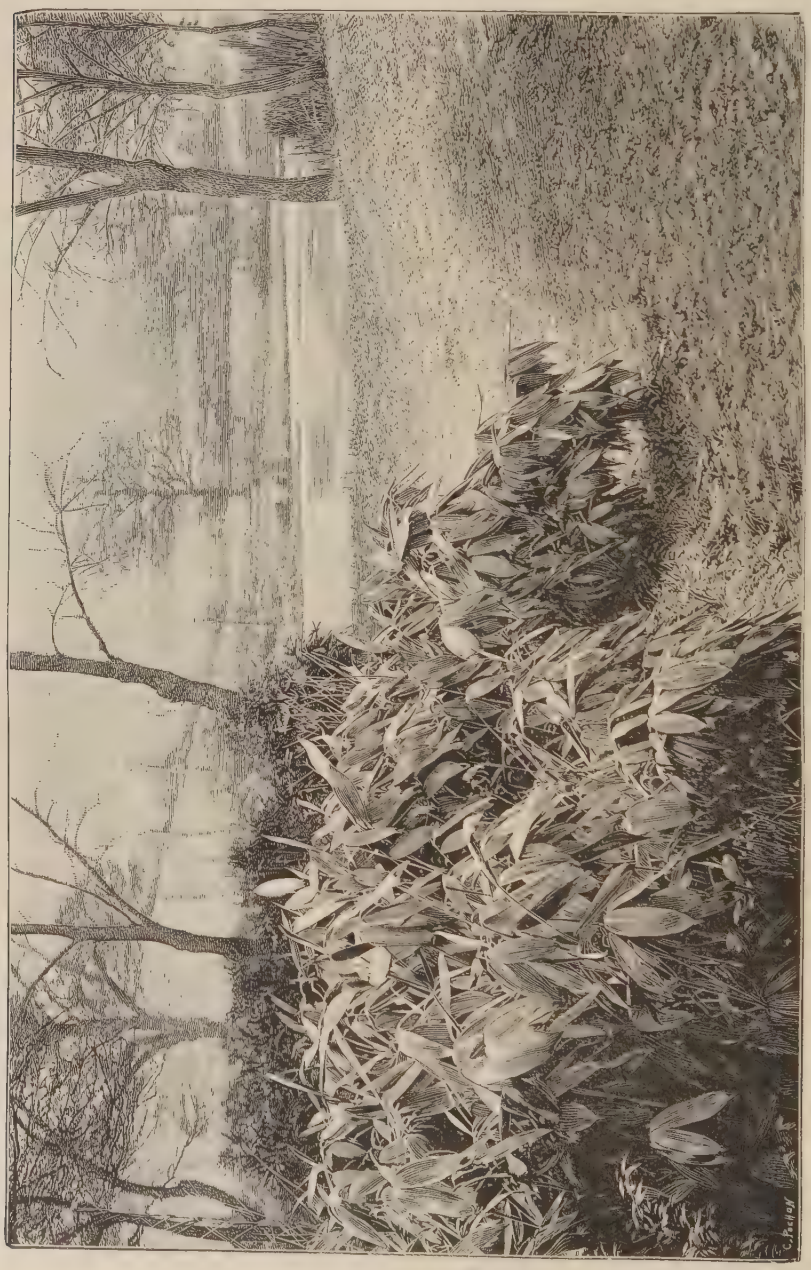
ARUNDINARIA NITIDA.—A very lovely species from N.W. Szêchuan. The culms are purple-black, very slender and round. The leaves are small, lancet-shaped, and tessellated. Quite the hardiest of all our Bamboos.

A. MARMOREA.—A pretty and distinct little Bamboo, for which I have chosen the name *marmorea* on account of the very peculiar appearance of the young stems, which are folded in purple sheaths, delicately marbled with a pinkish silver-grey, through which, near the knots, peep glimmers of the bright emerald-green or dark purple of the stem itself. The leaves, which are bright green, are about 4½ inches long by three-eighths to five-eighths of an inch broad.

PHYLLOSTACHYS HETEROCYCLA.—This is called by the Japanese Kiko-chiku, or

the "tortoiseshell Bamboo," from the curious arrangement of the alternately and partially suppressed internodes at the base of the stem, which sheathe it in plate armour like the scales on a tortoise's back. At about 2 feet or 3 feet from the ground the nodes are regularly defined, as in other Bamboos.

P. MARLIACEA.—A rare, handsome species. The only plant of it I possess has in its third year grown to a height of 8 feet, and promises to become very tall



The Palmate Bamboo, near waterside.

and vigorous. The stem is a dark green, shining like enamel; the internodes at the base are very close together, not more than 1½ inches to 2 inches.

P. FASTUOSA.—A very stately and beautiful plant, quite conspicuous among its fellows. The leaves are from 5 inches to 7 inches long by three-quarters of an inch to 1 inch in width, tapering to a sharp point, and markedly constricted at about an inch from the end, which has the appearance of a little tongue. Tall, spreading, gracefully plumed with foliage, which for richness and beauty of colour is without a rival.

P. AUREA.—The distinctive name *aurea* is not very happily chosen, for there is nothing golden about the plant, unless it be the yellow stems, and these are not peculiar to the variety named.

P. MITIS.—This is the tallest, and in that respect the noblest, of all the Bamboos capable of being cultivated in this country. At Shrubland the culms of plants imported seven years ago are 19 feet 5 inches high and 4¼ inches in circumference. In China and Japan it grows to 60 feet high. The stems, some of which spring out of the ground like spears, are, when fully developed, beautifully arched.

P. QUILIOI.—A very distinct Bamboo, introduced from the north of Japan. To me it appears to have a character altogether its own, and the many botanists and gardeners to whom I have shown it have without exception come round to my opinion. Altogether a notable Bamboo, growing at Shrubland to a height of 18 feet 6 inches. Syn. *Phyllostachys Mazeli*.

P. VIRIDI-GLAUCESCENS.—A most elegant and graceful Bamboo, growing to a great height—nearly 18 feet at Shrubland. The root-stock is very active, the plant being a great runner, while many of the culms come almost horizontally out of the ground, giving the plant a very wide spread.

P. VIOLESCENS.—This is sometimes said to be a variety of *P. viridi-glaucescens*, but quite different both in appearance and behaviour. It is somewhat more tender, the leaves being apt to be cut by frost, which gives the plant an ugly appearance in winter, but with the spring the culms are clothed with new foliage, and after all it is only those shoots which come into existence in the late autumn which suffer.

P. HENONIS.—To my taste this is the loveliest of all our Bamboos, and it is perfectly hardy, bearing up bravely against our coldest weather. The slender tall stems are green at first, growing yellower with age, slightly zigzagged. The root-stock runs rather freely, but it is to its habit that this Bamboo owes its surpassing loveliness. The two-year-old culms, borne down by the weight of their own foliage, bend almost to the earth in graceful curves, forming a pretty groundwork from which the stems of the year spring up, arching and waving their feathery fronds, the delicate green leaves seeming to float in the air.

P. BORYANA.—One of the handsomest and most vigorous of the hardy Bamboos, very graceful in its habit. Like *P. nigra*, the stems are green during their first year, but change colour the second year to a dull brown splashed with large deep purple or black notches.

P. CASTILLONIS.—A most lovely plant. The foliage is larger than it is in most of the Bamboos, some of the leaves being as much as between 8 inches and 9 inches long by nearly 2 inches broad. When they first appear they are striped with bright orange-yellow, which in time fades to a creamy white. As the sheaths of the branchlets are of a very pretty pink, the plant has a tricoloured effect.

ARUNDINARIA ANCEPS.—A very beautiful Bamboo discovered by Mr Jordan, superintendent of Regent's Park, in the stock of a dead nursery gardener, whose books being lost, it was impossible to trace its origin. It is probably a Chinese species. The culms are brown when ripe; the leaf-sheaths are hairy, and the petiole of the leaf is yellow.

A. NOBILIS.—A grand Bamboo, probably of Chinese origin, growing to a height of 24 feet at Menabilly, in Cornwall. It is quite hardy, only losing its leaves in early summer when the new ones are ready to appear. The tall stems are yellowish in colour, with very dark purplish nodes, of which the lower rim is broadly marked with grey.

BAMBUSA DISTICHA.—A pretty little dwarf Bamboo. Stem about 2 feet high, round, very slightly zigzagged; branches and leaves distichous; leaves hairy, especially at the base, and serrated at the edges about 1½ inches long by three-quarters of an inch broad, tapering to a point; leaf-sheaths hairy; rhizome inclined to run. A very distinct little plant, most useful for a choice corner in a rock garden.

BANKSIA.—Handsome Australian plants, shrubs, and trees, at one time much grown under glass, some of them brilliant in flower. A few kinds are found to thrive in the open air in Devon and Dorset. The kinds so far proved to live in the south of England, at Tresco and Abbotsbury, are *grandis*, *serrata*, and *quercifolia*. They should be given warm soil and the most favourable position.

BAPTISIA (*False Indigo*).—A vigorous Lupine-like group of perennials from N. America, forming strong tufts 3 to 5 feet high, with sea-green leaves;

the flowers, mostly of a delicate blue, in long spikes. *B. australis, exaltata,* and *alba* are the best-known kinds, and should be placed in the mixed border in any garden soil, but their value is not high.

BARBAREA.—Mountain and marsh cruciferous herbs of the Old World, few of much garden value, only two varieties being worth growing. The finest is the double yellow Rocket (*B. vulgaris fl.-pl.*), which is a beautiful and curious plant. It is about 18 inches high, flowers bright yellow, from June till late summer, and often till autumn. It succeeds in almost any soil, preferring a rich, light loam. Division.

BELLIS (*Daisy*). — *B. perennis* needs only simple culture, increases rapidly, and in the spring garden is of great service in large clumps or masses. Growers adhere most closely to the old flat-petalled white and the old quilled red, but besides these there are the flat-petalled Pink Beauty, a charming pink of the quilled class; Rob Roy, a deep rich red or crimson quilled kind; White Globe, with large white quilled petals, and many others. Of the yellow-blotched or Aucuba-leaved kinds, one, *aucubfœlia* is pretty, but rather tender. It will do well in winter on a free porous soil, and in summer in a cool shady border, if transplanted there. The giant or crown-flowered Daisies, though vigorous, are much less free of bloom. They are best suited for mixed borders.

Propagation is simple, and may be done in spring and autumn. Pull the plants to pieces, dibbling them in six inches apart, or a little closer.

BELLIUM.—Plants of the same order as the Daisy (Compositæ), of which some three or four forms are in cultivation. Although from the south of Europe they are hardy on the rock garden, but are apt to exhaust themselves in flowering. *B. bellidioides, B. crassifolium,* and *B. minutum* are much alike and are easily grown in light soil. *B. rotundifolium cœrulescens* (Blue Daisy) is a native of Morocco, and a pretty rock plant. Division or by seed.

BERBERIDOPSIS (*Coral Barberry*). —*B. corallina* is a beautiful evergreen climbing shrub from Chili, hardy enough for open walls in the southern counties. It has large spiny leaves very much like some Barberries, the flowers bright coral-red, hanging in clusters on slender stalks, and borne for several weeks in summer. It is charming for a wall, preferring partial shade, such as that of a wall facing east or west, and does best in peaty or sandy soil. Seed or layers.

BERBERIS (*Barberry*).—A brilliant family of shrubs so numerous that perhaps no one garden can show a half of their beauty. From many parts of the world the variety is almost amazing of summer leafing Barberries, each group containing plants of the highest value, hardy in our islands, too, as some native plants, and not only for the garden or rock garden, but also for copses and woodland, in which some evergreen kinds may be used with fine effect. The fruits also are among the most brilliant in colour and graceful in form we have, as is shown in our one native kind, the foliage of which is often fine in colour and form too. The summer leafing kinds take on a splendid colour in autumn.

B. AQUIFOLIUM.—A sturdy evergreen of N.W. America and parts of the Rocky Mountains, quite hardy in our islands, and useful both for the pleasure garden and as a cover plant in woods. It is easy of increase in most soils, but does best in peaty or leafy soils. There are several forms, and all valuable.

B. DARWINI (Darwin's B.).—A plant of Chili of great beauty, vigorous, tall, and charming in flower, and in my own garden often brilliant in fruit. No more beautiful hardy shrub. It may not be hardy in all districts, but is so beautiful that it deserves a place in all where it thrives. Seed.

B. DICTYOPHYLLA.—Under cultivation it is a spreading bush, 4 feet to 5 feet high, with glaucous stems. The yellow flowers appear singly, or in pairs, from the leaf-axils in May, and they are succeeded in autumn by bright red fruits. China.

B. DULCIS.—Generally a dwarf bush, quite hardy and free. There is a tall as well as a dwarf form. Both are easily grown, but are not quite as attractive as some of the newer kinds.

B. EMPETRIFOLIA.—A dwarf and graceful shrub, very hardy and excellent for rock gardens or banks, and interesting as one of the parents of the handsome *stenophylla*.

B. FORTUNEI.—A distinct evergreen species, but though said to do well in southern districts, I have found it rather tender and a poor kind.

B. GAGNEPAINII.—Forms a dense bush 4 feet to 6 feet high, with narrowly lanceo-

late, prickly leaves, each 1½ inches to 2½ inches long, and about ½ inch broad. The bright yellow flowers borne in dense racemose clusters are followed by black fruits. When seen in good condition this is one of the handsomest of the Berberis. China.

B. JAPONICA.—A noble evergreen with very fine foliage in our country. It thrives best in peaty or leaf soil and partial shade,

Berberis japonica.

in which conditions it is often very handsome for effect.

B. NEPALENSIS (Nepal Barberry) is distinct from the last, and, being much rarer, one cannot be sure of its hardiness for northern districts. It is a very fine plant in foliage, but seems a bit tender in the south; if tried in woods, might have a better chance. It is a noble evergreen, best tried in half-shaded spots.

B. NERVOSA.—A handsome dwarf evergreen barberry from N.W. America, said not to thrive in our climate, but worth a trial from seedling stock. A woodland plant in its own country, it is best to try in partial shade.

B. PINNATA.—A very handsome upright evergreen bush, profuse in flower, and growing well in most soils. A great plant for garden or covert. I am not quite sure if this ought to be accepted as a distinct species or as a variety of the Rocky Mountain one, but in my own garden it has proved a very handsome and vigorous evergreen, full of flower in the spring. It is a good plant for the copse and the wild garden anywhere. N.W. America.

B. POLYANTHA.—This grows from 5 to 10 feet high, erect and much branched; the flowers rich, clear yellow, freely produced in pendulous lax panicles each 6 inches to 9 inches long. The fruits oblong, dull salmon-red, with a pale glaucous bloom. Native of Széchuan, W. China.

B. SARGENTIANA (Sargent's Barberry).—A hardy evergreen kind with yellow flowers and black fruit, as yet not much known, but well deserves a trial.

B. STAPFIANA.—This is somewhat suggestive of the charming *Berberis Wilsonæ*, but is quite distinct therefrom. The specimen shown was a dense bush, some 4 feet high and more through, the shoots, from which the greater number of leaves had fallen, being freely furnished with roundish berries of a bright red translucence.

B. STENOPHYLLA.—A garden hybrid between *B. Darwini* and *B. empetrifolia*. The long slender branches droop gracefully on all sides, the bush being profusely laden with yellow blossoms. It is much hardier than *B. Darwini*, and seldom suffers from severe frosts, and grows freely in ordinary soils.

B. THUNBERGI.—A Japanese Berberis well worth planting for the sake of its coral-red berries and the brilliant tints of the leaves previous to falling in autumn. The leaves are small, and turn to a bright orange-scarlet towards the end of September. It is an easy flowerer, and the blossoms are usually at their best about mid-May. The fruits are smaller than those of the common Barberry, and a little deeper in colour. It thrives in any ordinary garden soil. China.

B. VERRUCULOSA is a dwarf-growing plant 1 foot to 2 feet high; semi-prostrate in habit, with ornate prickly leaves, shining above and glaucous below, the golden yellow flowers being followed by violet-black fruits.

B. VIRESCENS.—A handsome upright shrub with showy leaves that take on fine colour in autumn. The young bark is also a good colour, which makes it an excellent plant for grouping. It grows very well in any soil. Is a native of the mountains of India.

B. VULGARIS (Common Barberry) is, when in fruit, very attractive, the long, drooping racemes of bright scarlet berries being produced very abundantly. There are several named varieties of it. A selection should include the white and violet-berried kinds, *sanguinolenta*, and the purple-leaved kind, a very ornamental shrub, the foliage of which is of a purple hue. It is a very effective shrub when

grouped. It is the only native kind of our country, and is found wild over a large part of Europe, N. Africa, and C. Asia also. It is an interesting shrub in any position, but its full beauty is never seen unless it is grouped in the full sun.

B. WALLICHIANA.—Has glossy evergreen foliage, with which the clear yellow flowers contrast finely. It is hardy, though liable to be injured by very severe frost. It thrives in ordinary soil and in any position.

B. WILSONÆ (Wilson's B.).—This came to us from China in recent years, and is one of the most brilliant shrubs we have ever had for the rock or choice shrub garden, flowering and fruiting early, and very graceful in form.

BESCHORNERIA.—Mexican plants allied to the Agaves, but hardier and more easily grown. They perish inland, but in warm shore-gardens several kinds thrive in the open air, their fine bluish-green leaves, like those of a Yucca but more fleshy, without spines, and often a yard long and several inches wide, create an effect unlike any other hardy plant. When well established they bloom freely, and though the flowers are only small and mostly green in colour, the large leafy bracts, the flower-stalks, and the great arching stems themselves, are of so vivid a crimson as to make a striking picture. They need all the sun they can have, a light rich soil, and a dry place such as the crest of a sheltered bank or the foot of a warm wall. Several kinds have been tried successfully, such as *B. yuccoides*, *B. bracteata*, and *B. tonelii*, but all are similar in effect, though seldom seen except in the shore-gardens of the south and west.

BETA (*Cilian Beet*).—*B. cicla variegata* is a variety of common Beet, the leaves being more than 3 feet long, vivid in colour, their midribs varying from dark waxy orange to vivid crimson. The plant should be sown in a gently heated frame, and afterwards planted out in rich ground. It varies much from seed, and the most striking individuals should be selected before the plants are put out. Used sparingly, its effect is often perhaps more telling, but it is a mistake to use this or any such vegetables in the flower garden. Other varieties of the common Beet are misused in the garden for the sake of their dark colours, but no artistic flower gardening is possible where such vegetables out of place are used.

BETONICA (*Betony*). — A small group as to its garden value but has at least one handsome vigorous plant. *B. specirosa* effective in the mixed border and of easy culture.

BETULA (*Birch*).—Trees of cold and Arctic regions, often forming vast forests. Sometimes, in the extreme north, even the tall and graceful Birches of more temperate lands take a bushy form, and there are also Arctic and northern species which are small and give us little effect or interest except for botanic gardens. The Birches, generally, are easy to grow and should be raised from seed, in which way they come very easily, excepting what are called the garden or nursery varieties. These are grafted, and might be propagated by layers, if anybody would take the trouble, and in this way might be longer lived and useful in some ways. Owing to the beauty of our native species in all sorts of positions north and south, we have not lost so much by neglecting the American species, but it would be difficult to expect any of them to show anything finer in effect than such woods as we see in Northern and Central Europe, of Birch alone, the silvery stems rising out of heath or Ferns. Among the greater, or tree, Birches after our own (including its varieties or allies, *verrucosa* and *pubescens*) are the Canoe Birch (*B. papyrifera*) or Paper Birch, a forest tree of N. America, which is hardy in Britain; the River Birch (*B. nigra*), also a tall tree of N. America; the Cherry or Sweet Birch (*B. lenta*), which is sometimes 80 feet high and also of northern distribution (Canada, Newfoundland); the Yellow Birch (*B. lutea*), sometimes 100 feet high; the Western Birch (*B. occidentalis*), a medium-sized tree of W. America and British Columbia, and the White Birch (*B. populifolia*), also a slender tree of Canada and the Northern States, with tremulous leaves like some of the Aspens. *B. maximowiczi* is a distinct and fine Japanese kind which grows very high and with a trunk 2 to 3 feet in diameter, the bark orange-coloured, the leaves very large. *B. ermani* is also a common kind in Japan.

As regards the positions of Birches in a pleasure-ground, there is not a more graceful lawn tree than the cut-leaved and weeping kinds, the more so where trees of light shade are desired.

BIGELOVIA (*Plumed Golden Rod*).—Shrubby or half-shrubby perennials coming from the dry plains and mountain slopes of the Western States of America, as yet little tried in Britain. They thrive in dry soils and sunny places, where they are not overgrown by stronger plants.

BILLIARDIERA LONGIFLORA (*Purple Apple-berry*). — An elegant climbing plant, hardy in the southern counties. Its narrow oblong leaves show its purple-blue berries to advantage as they dangle in profusion in autumn. The flowers are of a greenish-white colour, and are not so showy as

Weeping Birch.

B. GRAVEOLENS, the best-known species, is of shrubby habit and from 1 to 6 feet high, much branched and thickly covered with narrow light green leaves about 2 inches long and covered with white silky wool. The flowers appear as heads of 4 to 6 inches, very fragrant and of a pale yellow, lasting from the middle of summer to late autumn.

are the berries. The Tasmanian Apple-berry is a charming shrub for a low wall, or it may be grown in pots plunged outside and trained on old Bamboo stems, so as to be taken indoors when the fruits are coloured. It is readily increased either by cuttings or layers, or by seeds sown as soon

as the berries shrivel on the stems. *B. cymosa* is also in cultivation. Australia.

BLETIA.—*B. hyacintha* is a beautiful Chinese Orchid, with ribbed leaves, and slender flower-stems 1 foot or more high, bearing about half a dozen showy flowers of a deep rosy pink. It is hardy, and thrives in sheltered and shaded situations in peat

The Plume Poppy (*Bocconia cordata*).

borders in winter. In cold districts it would be well to cover the roots. It is very interesting for the bog garden or a bed of hardy Orchids.

BOCCONIA (*Plume Poppy*). — *B. cordata* is a handsome and vigorous perennial of the Poppy order, growing in erect tufts 5 to over 8 feet high, with numerous flowers in very large panicles. It is best in the shrubbery in ordinary garden soil, in bold groups. Seed.

BONGARDIA.—*B. rauwolfi* is a plant of the Barberry order, though remarkably unlike one, as it has a Cyclamen-like root-stem, from the apex of which spring the flower stems 6 inches high, bearing roundish golden blossoms from ¾ to 1 inch across, which droop gracefully from slender stalks. Though now rare, this beautiful plant was among our earliest garden plants. Found from the Greek Archipelago to Afghanistan, and hardy on dry soils. Seed. Syn. *Leontice.*

BORAGO (*Borage*).—*B. orientalis* is a vigorous perennial, bearing pale blue flowers early in spring, having very large leaves through the summer. Easily naturalised in any rough place, but not worth a place in the garden proper, being coarse and taking up much space. The common Borage is very pretty, naturalised in dry places or banks, where it might often be welcome for use as well as beauty. There is a white variety. *B. laxiflora* is pretty, with pendent blue flowers; it grows very freely on sandy soils.

BOUSSINGAULTIA (*Madeira Vine*). —*B. baselloides* is a luxuriant trailing plant of the Spinach order with shoots 16 to 20 feet long, flowering late in autumn, the flowers small, white, fragrant, and becoming black as they fade. The fine green leaves are shining, fleshy, and slightly wavy; stems twining, tinged with red, growing with extraordinary rapidity, and bearing many tubercles. Suited only for dry banks and chalk-pits, associated with climbing and trailing plants. Increased by tubercles of the stem, which break with the least shock, but the smallest fragment will vegetate. S. America.

BRACHYCOME (*Swan River Daisy*). —*B. iberidifolia* is a pretty Australian annual of simple culture, about 8 to 12 inches high, the flowers about 1 inch across, and bright blue, with a paler centre. Sow in cool house in September as soon as ready, prick off four or five in a 4-inch pot, keep in cold pits during winter, and guard against damp. Pot on again in March singly into 4-inch pots, and at end of April plant out into open borders; or sow on slight hot-bed in March, prick out into pits for transplanting into open in May; or sow in open in April and May.

BRACHYGLOTTIS REPANDA.—A New Zealand shrub, with fine foliage, deeply toothed; of a deep green, mottled with dark purple on the upper

side and silvery-white beneath. As many of the leaves on a shrub invariably display their undersides, the sharp contrast between the white and the deep green is striking. The leaves are nearly a foot in length and 8 inches in breadth. In the small state they are ivory-white on both sides. The flowers are said to be minute and inconspicuous, but the shrub is not apparently a free bloomer, as a specimen that has grown at Kingswear, S. Devon, for six years, and is now 5 feet 6 inches in height, has shown no sign of blossom up to the present. It appears to be quite hardy in the south-west. Syn. *Senecio Fosteri*.

BRAVOA (*Scarlet Twinflower*).—*B. geminiflora* is a pretty Mexican bulbous plant of the Amaryllis order. From 1 to 2 feet high, the flower stems stout and erect, bearing on the upper part numerous pairs of nodding tubular flowers of a rich scarlet outside, but inclined to yellow within. It succeeds well in warm sheltered situations in borders of light and well-drained soil, but requires some protection over the bulbs in winter. It flowers in autumn, and remains a long time in bloom.

BREVOORTIA (*Crimson Satin-flower*).—*B. coccinea* is a beautiful bulbous flower of the Lily order, also known as *B. Ida-Mai*. It is one of the prettiest Californian plants. The flowers grow on stems, 1½ to 2 feet high, and are tubular and of a deep crimson-red, the lips a vivid green. It succeeds best in friable loam. Plant in October, and the roots may remain undisturbed for several years. Offsets and seed.

BRIZA (*Quaking Grass*).—A graceful family of grasses, American and European. *B. maxima* is one of the handsomest, growing 12 to 18 inches high; may be sown in the open in March in any garden soil, is quite hardy and graceful while growing, and useful for decoration either green or dried. *B. media* (Common Quaking Grass) is smaller, 9 to 15 inches high. Borders. Seed.

BRODIÆA (*Brodie's Lily or Californian Hyacinth*).—A charming family of N. American liliaceous plants.

B. CONGESTA has the stems long and wiry, the flowers in a dense umbel; purplish-blue in colour, and very lasting. *B. alba* is a pretty white-flowered variety. *B. capitata* much resembles this kind.

B. GRANDIFLORA.—This is an old and pretty plant, about 5 inches high, with deep purplish-blue flowers in a loose umbel in July. At the time of flowering the foliage is often withered, and to hide the nakedness of the stems it is sometimes best planted among other low-growing plants.

B. HOWELLI.—This pretty species has flowers in a fine umbel, bell-shaped and milky white. A beautiful variety of it (*lilacina*) has delicate bluish flowers, retaining its fine deep green foliage at the time of flowering, and throwing up sturdy stems about 2 feet high, crowned by large flat umbels of well-shaped flowers.

B. LAXA is a very old garden plant, of which there are several varieties, not only varying in colour, but in the size of the flowers and the umbels.

These bulbs may be planted from October until December, and in mild localities will pass the winter in the open unprotected. In Holland, where the winters are often very severe, they are covered with reeds or straw at the approach of the cold season. This covering will keep the cold off, the soil open, and ward off the effects of a treacherous winter sun.

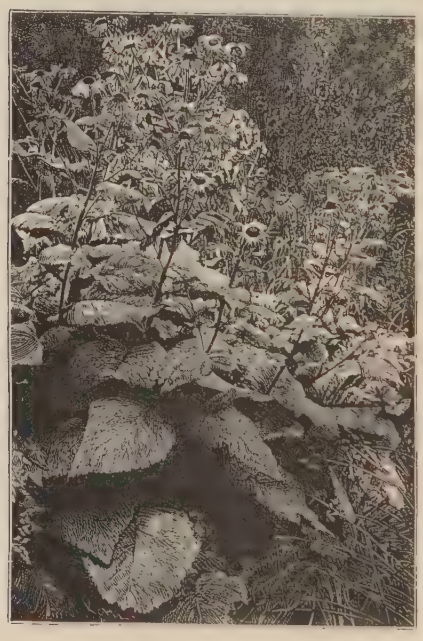
BROMUS (*Brome Grass*).—At least one of this large genus of grasses is very graceful and worthy of culture—that is *B. brizæformis*, a hardy biennial about 2 feet high, with large, graceful, and drooping heads. It is more valuable for cutting and drying than any of the Quaking Grasses. It may be grown as an annual sown out of doors in spring, and autumnal-sown plants would be best in warm soils.

BROUSSONETIA PAPYRIFERA (*Paper Mulberry*).—A small summer-leafing tree allied to the Mulberry, and somewhat similar in its broadly-rounded head and the large and softly hairy leaves. The shape of the leaf is, however, most variable even upon the same tree, some being entire and others deeply lobed, while there are varieties with leaves crisped, variegated, and variously cut. The catkin-like flowers are dull red, and with a scent of Cowslips, coming in May either as short spikes or rounded fleshy balls, according as they are male or female, while the fruits consist of small fleshy nutlets. Though hardy in the south of Britain, where it makes a shapely lawn tree, in the north it needs shelter, and is safest against a wall. China.

BRUCKENTHALIA SPICULIFOLIA.—A pretty little Heath-like plant with pale purple flowers under 1 foot

high. It is a plant for the rock garden in free peaty soils. S.E. Europe.

BRYANTHUS.—A rare and interesting group of northern and Arctic Heath-like plants, few of which are in cultivation. *B. erectus* is a dwarf evergreen Ericaceous bush, from 8 inches to 1 foot high, bearing pretty pinkish flowers. Said to be a hybrid. In fine peat it grows well, and is best on the rock garden or among dwarf alpine shrubs. Among the known kinds are *Breweri, glanduliflorus,*



Buphthalmum speciosum.

gmélini, all peat and rock garden plants. Sometimes our own native *Menziesia cærula* is included under this name.

BUDDLEIA (*Orange Ball Tree*).—*B. globosa* is a favourite shrub from Chili, often seen in the southern coast gardens, where it is hardier, and in Ireland; the flowers, balls of bright yellow, are showy in early summer. It is of rapid growth, and if badly cut down during a severe winter generally grows again in the following summer. *B. Colvillei* is a tender Himalayan kind, with bunches of pale rose-coloured flowers. It is a shrub for mild districts only. Other species less satisfactory for open-air culture are *B. crispa, B. Lindleyana. B. albiflora* is from Central China, with flowers in long spikes. The name is a mistake, as the flowers are mauve. It is a handsome plant, and promises to be hardy and free. *B. variabilis* is a native of the mountains of China. It is a large shrub, 8 to 10 or more feet high, variable in foliage, and with flowers densely crowded in globose heads peduncled in the axils of the uppermost leaves, and which vary in colour from pink to pale lilac, with an orange throat. Some forms of this, *Veitchiana* and *Magnifica,* are very free and beautiful. These *B. variabilis* forms are best pruned in March, or even later.

BULBINELLA HOOKERI. — Also known as Anthericum and Chrysobactron, this graceful member of the Lily order is well suited to either border or rockwork. The plant forms a rosette of linear sheathing leaves, from which columnar spikes 1 to 2 feet high, bearing bright yellow starry flowers in a dense raceme, and having the aspect of a miniature Eremurus, issue. Prefers a deep rich loam. Flowers in June. Plant 3 inches deep. Seeds or division. New Zealand.

BULBOCODIUM (*Spring Meadow Saffron*).—*B. vernum* is a pretty liliaceous bulb from 4 to 6 inches high, and one of the earliest of flowers, sending up large rosy-purple flower-buds, distinct in colour. The tubular flowers are nearly 4 inches long, and are usually prettiest in the bud state. Easily increased by dividing the bulbs in July or August, and replanting them from 4 to 6 inches apart. Alps of Europe.

BUPHTHALMUM.—*B. speciosum* is a bold, free, and showy perennial, hardy, and growing in any soil, with large heart-shaped leaves in great tufts, and, in summer and autumn, handsome heads of showy yellow flowers with dark centres. An excellent plant for shrubberies and covering the ground here and there in bold masses, as it grows so close that it keeps the weeds down, and in such ways also gives a better effect than in small tufts in the mixed border. Central Europe. Division. Syn. *Telekia speciosa.*

BUTOMUS (*Flowering Rush*). — *B. umbellatus* is a handsome native water-plant, often very fine in a rich, muddy soil, and hardy and free to flower. Common by some river-banks, and growing with water-side weeds in garden ponds and lakes, flowering in

summer rose-red in bold umbels. Division.

BUXUS (*Box*).—This beautiful bush grows wild on some of our southern chalk hills, and is much cultivated in gardens as an edging, and also in shrubberies. The beauty of its habit is seldom seen in gardens, owing to being too much crowded, but seen wild its habit is most graceful, and it might be well to secure the same beauty of habit by planting in groups upon exposed knolls. *B. sempervirens* (the Common Box) from its close bushy habit is one of the most useful Evergreens for garden hedges. While there are few soils in which it will not thrive, it prefers such as are light, with a warm gravelly subsoil. Among the species is *Japonica*, a dwarf form, but hardier. The Minorca Box (*B. balearica*) is a native of islands in the Mediterranean, as well as Italy and Turkey, where it forms a fine tree of from 60 to 80 feet in height. The leaves are larger than those of the Common Box, and when exposed to the sun are of a lighter green, but it only succeeds well in warm, well-sheltered situations, with a dry soil and a warm subsoil. Other species are *Harlandi*, *microphylla*, and *Wallichiana*, but few of these so precious as the Common Box.

CACCINIA GLAUCA. — A dwarf hardy perennial belonging to the Borage family from the highlands of Persia. About 9 inches high, with sparingly branched, succulent stems and glaucous leaves, covered with stiff hairs and short terminal racemes of flowers about half an inch in diameter, resembling in form that of Borage.

CACTUS.—Various plants belonging to the Cactus order of plants have proved hardy in England. *Opuntia*, *Echinocereus*, *Mammillaria*, and *Echinopsis* are among the hardiest. Pretty effects are shown by some Cacti in the open air in Southern England, the plants blooming freely when fully exposed in the sun on a warm rock garden, though the loss of the sun of their native plains is against their being very happy in Britain.

It is well to place Cacti so that they may be safe from injuries, apart from climate, and the best places are, as a rule, on well-drained ledges in the rock garden. In effect they seem out of place in an English garden.

CAESALPINIA JAPONICA. — A graceful and distinct summer-leafing shrub, one of a genus usually tropical, but this is hardy in the country around London. It has hard prickles, leaves a foot long and very graceful, and handsome yellow flowers in racemes. Does best in good free soil, and is excellent for dry banks, and in Midland and cold districts deserves a south wall. Seeds.

CALANDRINIA (*Rock Purslane*).—Dwarf annual or perennial plants of the Purslane order. Few are very effective for gardens; some are brilliant border or rock plants, thriving in warm soils. *C. discolor* is a beautiful S. American plant, from 1 to 1½ feet high, with fleshy leaves, pale green above and purple beneath, and bright rose flowers in a long raceme, 1½ inches across. *C. grandiflora* is a handsome annual with showy blossoms. It thrives in a warm and good loam, and blooms throughout the autumn. *C. oppositifolia* is a distinct plant, and is well marked by its larger, very thick, succulent leaves and delicate white flowers. *C. speciosa* has flowers from ½ to 1 inch across, purple-crimson; on sunny mornings they open fully, closing early in the afternoon. *C. umbellata* is a distinct and pretty plant, the flower dazzling magenta-crimson. It does well in sandy peat or in other light earth, and is perennial on dry soils and in chinks in a well-drained rock garden. Seed sown in pots or in the open air in fine sandy soil. Chili.

CALCEOLARIA (*Slipper Flower*).—Handsome herbs or low shrubs of the Foxglove order, mostly from S. America, many of high garden value, but few hardy. In the London district many of the varieties die from disease, or are short-lived as regards bloom, but the handsome *C. amplexicaulis*, with its bold habit and lemon-yellow flowers, is always a favourite.

Apart from the varieties, a number of species are of some merit for the flower garden. The greater number inhabit mountain valleys, and ascend to an elevation of from 13,000 to 14,000 feet in S. America.

C. ALBA.—One of the most attractive, with narrow dark green leaves, slightly toothed. The flowers, produced in branched racemes, are small and pure white. The whole plant is somewhat viscid or clammy. This makes an interesting wall plant, and is worth persevering with where good plants are appreciated.

C. AMPLEXICAULIS.—A fine kind with soft green leaves clasping the stem and

many lemon-yellow flowers. Owing to its tall habit it groups well with various plants, and it is handsome in the flower garden in autumn. Ecuador.

C. KELLYANA.—A curious hardy hybrid, with short downy stems, 6 to 9 inches high, flowers about an inch across, yellow with numerous small brown dots top of the stems. Its foliage resembles a Mimulus, creeping along the ground, and it is a very interesting dwarf rock garden plant.

C. PLANTAGINEA.—A low-growing plant spreading by means of short side growths; the leaves, formed in rosettes, are broadly ovate, with toothed margins and attain a considerable size in moist positions. The flowers, produced on slender stems, 9 inches to a foot high, are of a fine bright yellow.

C. POLYRRHIZA increases rapidly by means of wide-spreading rhizomes, and quickly finds its way into conditions which suit it. At Glasnevin, where it was originally planted in a small bog, it spread up a bank on one side and established itself among the roots of ferns growing there; it appears to like rather drier conditions than *C. plantaginea*. The leaves are long and narrowed into a petiole, and are softly hairy on both surfaces. The flowers, produced singly on slender stems, have a rounded "pouch" yellow with numerous reddish-brown spots underneath.

C. VIOLACEA.—A distinct kind, with small helmet-shaped flowers, rich purple and spotted; succeeds well on warm borders or the rock garden, and, if slightly protected, withstands mild winters in the south. Chili.

CALENDULA OFFICINALIS (Pot Marigold).—A hardy biennial; one of the best for autumn and winter flowering. The petals were formerly used to flavour dishes in old English cookery. For late blooming, seed should be sown in July. The plants sow themselves freely, and may be sown in the open ground either in spring or autumn. There are now pretty varieties.

Calandrinia oppositifolia.

CALLA (*Bog Arum*).—*C. palustris* is a small, hardy, trailing Arum, with white spathes. Flowering in summer, and increasing rapidly by its running stems. For moist spongy spots near the rock garden, or by the side of a

rill, it is one of the best plants, but its beauty is best seen when it is allowed to ramble over muddy soil. N. Europe.

CALLIRHOË (*Poppy Mallow*).—Handsome N. American plants of the Mallow order, of which some half-dozen kinds are known in our gardens. They are hardy, herbaceous perennials, and succeed well in the open border in rich, light soil.

C. ALCÆOIDES is an erect herbaceous perennial, with the habit of a *Malva*, the flowers from 1 inch to 1½ inches in diameter.

C. DIGITATA.—A distinct glaucous perennial herb, 2 or 3 feet high, with reddish-purple flowers in summer; it is not so showy as the other kinds.

C. INVOLUCRATA.—A dwarf perennial, with large violet-crimson flowers 2 inches in diameter. It is excellent for the rock garden, bearing a continuous crop of showy blossoms from early summer till late in autumn. California.

C. PAPAVER has a trailing habit, and flowers incessantly from early summer until late autumn. The flowers are a bright purple-red, as large and somewhat resembling those of our common field Poppy.

C. PEDATA.—A perennial, with trailing stems bearing handsome crimson flowers, 2 inches in diameter; sown early the plants bloom the first season, and flower until late in autumn, and in dry soils the roots survive our average winters.

CALLISTEMON SALIGNUS.—There are two forms of this Bottle-brush shrub, one bearing pale yellow flowers and the other crimson. Others are *C. lanceolatus*, carmine, and *C. speciosus*. These grow well as bushes, some of the first sometimes 10 feet, and as much in diameter. These plants thrive in Devon and Cornwall, and in the milder seashore districts. Australia.

CALLISTEPHUS (*China Aster*).—Among the many annuals now in cultivation, China Asters (*C. chinensis*) are among the best, and when well grown and cared for they do as much to adorn a garden during summer and autumn as any annual plant. To see them in their beauty, however, they must be grown in masses, and not at any stage left to haphazard or poor culture. It will also be found that they are more satisfactory on good open soils than on heavy ones.

VARIETIES.—China Asters may be classed according to height, habit, character of flower. Tall Asters comprise the fine Pæony-flowered, the tall Chrysanthemum, the Emperor, the tall Victoria, the Quilled, and a few others. Kinds of medium height are the dwarfer forms of the Victoria, the fine Cocardeau, the Rose, and the Porcupine. The dwarf forms comprise the short Chrysanthemum, the dwarf pyramidal, and specially the dwarf bouquet, which is one of the most beautiful for pot culture. The best bedding kinds are the medium-growing Victoria, the Rose, and the dwarf Chrysanthemum, as these vary from 9 to 12 inches in height, and form good bunches of bloom on each plant, and fine masses of colour collectively. The dwarf bouquet kinds, whilst specially good for pot culture, are valuable as edgings to beds of taller kinds. For pot culture for exhibition, the best are the medium-growing Victorias, as these, if of a good strain, possess quality, and handsome even heads of bloom.

"China Asters like a deep rich soil, and, should dry weather set in, it is only in such soil that really fine flowers can be obtained. Planted in the ordinary way, they are weeds in comparison with those that are well nourished. Confined to the top shallow crust of earth, they soon starve. The best way to manage them is to dig and cast off the top spit to one side, handy to be returned to its place again, and then to trench and break up the soil below, working in plenty of short manure. In very light soils a few barrow-loads of clay, chopped fine and mixed well in, will help. The thing to aim at is to keep the soil cool and moist; then, if the weather be favourable, the plants will take care of themselves."

CALOCHORTUS (*Mariposa Lily*).—Bulbous plants from western N. America, of the Lily order, and forming one of the most charming groups of hardy plants, the colours of the flowers varied and beautiful. Excepting the Mexican species, which are few, Calochorti are hardy; but my experience is that unless on very warm soils their culture is precarious in our country, and no wonder, considering they come from one of the most genial climates.

They are so singularly beautiful, however, that many will attempt their cultivation, and the advice of Mr Carl Purdy, who has studied the species in their native wilds, and cultivated them, is the best we can have:

"Calochorti are natives of a vast region in N. America, stretching from

far east of the Rocky Mountains to the Pacific Ocean, and from Northern Mexico to British America. From the sea-coast and islands they grow from 6000 feet to 9000 feet altitude on the peaks. Some are natives of the intensely hot deserts of Southern California and Arizona, and some grow in the moist meadows of Oregon in a climate differing but little from that of England. In Montana and other states of the inland region the species indigenous there have to bear as low a temperature as 40° below zero. In the soils in which they naturally grow there is as much diversity. Clay, sand, loam and rocky *débris* are respectively the chosen homes of certain species, and several choose the blackest and stickiest of clays. One is found in salt meadows, and many in grassy meadows.

"I have at different times tried nearly every known species in many soils and situations. The winter climate of Ukiah is quite wet, with the thermometer often at 20° to 24°, and sometimes as low as 15° above zero. Often the Calochorti leaves are frozen till they crackle, but I have never known any injury to result. In spring there is abundant rain until their flowering time, while our summer is perfectly dry. Perfect drainage is the first essential to success for all sorts. I have gradually come to the use of three mixtures. Along our river banks there is a winter deposit of sandy silt. This is excellent Calochortus soil, but not so good as the next. I find the best results follow from the use of about one-half half-rotten spent tan bark with one-half sandy or clay loam. The tan bark rots slowly and gives a loose, well-drained soil, which will not pack. This suits all Calochorti, and gives a splendid bloom and firm, well-ripened bulbs. For English growers many substitutes will occur. I know of but one disease to which Calochorti are subject. This is a mildew, the 'Lily leaf ash.' It attacks them in the spring, just before the flowering stalk appears. It attacks the leaf tissue, and in a week entirely destroys the leaf and injures the bulb. In their susceptibility to the attacks of the fungus Calochorti vary greatly. All of the species having a single, glossy, radical leaf are free from its attacks. This includes all of the Star Tulips and the *C. nitidus* group. While all of the desert species, such as *C. splendens*, *C. Kennedyi*, *C. Palmeri*, *C. Gunnisoni*, *C. Nuttalli*, *C. macrocarpus*, and *C. flexuosus* are subject to it to such an extent as to make their successful culture very near hopeless unless some cure can be found for this mildew.

"While the amateur may prefer to try all sorts and get his experience for himself, I believe that many growers will appreciate a list of the best growers among the Calochorti. For such I would recommend the following:—

Calochortus fuscus.

"In the globular-flowered Star Tulips, *C. albus* (white), *C. pulchellus* (yellow), and *C. amœnus* (rose-coloured), are all thrifty and beautiful. Among the open-cupped Star Tulips, *C. Benthami*, in yellow, and *C. Maweanus* var. *major*, are the best. There is, however, a race of giant Star Tulips, sturdy plants 9 inches to 16 inches high, with large flowers of the same delicate style as *Maweanus*, which, although rare now, will soon quite displace the smaller ones. These are *C. apiculatus* (straw-coloured), *C. Greeni* (blue), and *C. Howelli* (yellow). *C. lilacinus*, a

lavender-coloured sort, is a splendid grower and very desirable. In the next section, *C. nitidus* is a fine hardy and very beautiful plant, combining the attributes of Star Tulip and Mariposa. In the *C. Weedi* set, *C. Plummeræ* is best. Of the true Butterfly Tulips, *C. Vesta* is by far the best grower. It is a sort which has great vitality, can be propagated very rapidly by offsets (three or four a year), and grows well in any well-drained soil. *C. venustus* var. *purpurescens* is almost as good a grower, and the two are by all odds the easiest Calochorti to grow. *C. venustus* var. *citrinus*, in lemon, is very thrifty. That grand plant *C. clavatus* is a fine grower.

"I have found that by very late planting I can bring sorts to flower which, planted early, invariably succumb. I had the same experience a year ago. It would seem that when planted early they reach a standstill period in late winter and cannot resist disease, while planted late they are in full growth at the critical period.

"Clearly if so much care is needed in their own lovely climate, in ours it will require all our care to secure them perfect drainage, porous soil and warmth, though no doubt some of the naturally warm soils may suit them."

CALOPHACA.—Pretty Pea-flowered rock shrublets, *C. Wolgarica*, a native of S. Russia, and *C. grandiflora*, Central Asia. Plants for the rocks, banks, and free soil, and, as far as I have seen them, of good effect. They are allied to *Caragana*.

CALOPOGON.—*C. pulchellus* is a beautiful hardy Orchid suitable for boggy ground, the flowers pink, 1 inch in diameter, in clusters of two to six upon a stem, beautifully bearded with white, yellow, and purple hairs. Plant in the rock garden, bog, or in an open spot in the hardy fernery in moist, peaty soil, as it is a native of wet spots at the edges of Pine woods in the moss in Cranberry swamps, and in wet grassy marshes, and occasionally seen on solid ground in low, wet, woody situations in N. America.

CALTHA (*Marsh Marigold*). — The Marsh Marigold (*C. palustris*), that in early spring "shines like fire in swamps and hollows grey," and is one of our good plants, though it is so frequent in a wild state that there is little need to give it a place in country gardens. Its double varieties are good in a moist rich border, or by the water-side. There is a double variety of the smaller creeping *C. radicans*, about half the size of the common plant. There are double-flowered forms bearing beautiful golden rosettes — Tyreman's variety is a good showy one. There are also *C. leptosepala*, a Californian kind, and *C. purpurascens*, distinct and handsome, about 1 foot high, with purplish stems, and bright orange flowers, the outside of the petals flushed with a purplish tinge. The various Marsh Marigolds in groups or bold masses are effective, *polypetala* being the finest kind; they are easily grown in shallow water or boggy soil, and increased by division.

CALYCANTHUS (*Allspice Tree*).—N. American shrubs with flowers of pleasant fragrance. *C. occidentalis* is from 6 to 8 feet high, with large maroon-crimson flowers of fine fragrance, and is worthy of cultivation. *C. floridus* is smaller and not so dense, with purplish-red flowers, strongly scented. The two described are hardy, the Carolina species having been grown since 1757. They flourish best when somewhat shaded by other trees and where the ground is damp.

CALYPSO.—*C. borealis* is a pretty little hardy Orchid, with rosy-purple sepals and petals, and a white lip, heavily blotched with cinnamon-brown, from the cold regions of N. America. It succeeds in half-shady spots on the margin of the rock garden or bog, or in a select spot among choice shrubs in light, moist vegetable soil, covered with Cocoa fibre to keep the surface open.

CAMASSIA (*Quamash*).—N. American plants of the Lily order, hardy, handsome, and of easy culture.

C. CUSICKI, from the Blue Mountains of Oregon, has been described as the most vigorous species yet found with large broad leaves, a stout flower-stem growing 3 feet high, and flowers of a pale delicate blue, large and spreading.

C. ESCULENTA (Quamash) is a native of meadows and marshes in N.W. America, from 1 to 3 feet high, its stalks bearing a loose raceme of from ten to twenty flowers about 2 inches across, the colour from deep to pale blue. There is also a pure white, and various other forms thriving in moist situations in a deep light soil.

C. FRASERI (Eastern Quamash).—A native of the States east of the Mississippi, its flowers are rather smaller than

those of the western species; about 1½ feet high, the scape bearing a raceme of ten to thirty pale blue flowers, each about 1 inch across. It is later in flowering than other Camassias, thriving in a light rich soil.

C. LEICHTLINI (White Camassia).—This often grows on sandy ridge-tops, and is found in dry spots in ravines; its bulbs are generally deep in some stiff soil. The flower-spike is large, bearing creamy white flowers, the stem 3 to 4 feet high. It is vigorous, but not so handsome as the above. British Columbia.

CAMELLIA.—Handsome shrubs of the Tea order, mostly grown under glass in our country, but in the Isle of Wight and the southern coasts of England and Ireland it is often laden with flowers. Most people who have Camellias in the open air find that they flower well five out of every six years, and that the plants are hardier than many shrubs that make their new growth early in the year. Their greatest enemy is fierce winds. In planting them out for the first time it is well to plant first some of the commoner kinds, and in sheltered spots; then, when these thrive, to continue with more valuable ones. The best aspect for Camellias is a south or south-west one, sheltered by a bank or wall, but in some districts they thrive on north walls. Planting from pots may take place at any period, but about July is the best time, as the wood is then well ripened. The Camellia is hardier than some more popular things, such as the Bay, or even the Cherry Laurel, and will not only grow in the south of England and Ireland, but in many other parts as well. When I first came to Gravetye, I put a group in what was then a copse, rather carelessly, and they have thriven ever since—that is to say, for twenty-five years certain, and have never turned a leaf in any frost or storm. The soil is rather poor, and the position slightly shaded under trees. They were never mulched or attended to, and are rather close-set. The only nourishment they have is the fall of their leaves! One should keep to the single forms—red, rose, or white, as may be preferred. Camellias have been very much neglected in the past, the trade seeking double forms, which are not nearly as good for the open air.

C. RETICULATA.—This is hardy, but rarely flowers satisfactorily in the open, except in the south-west, where it is grown both against walls and as a bush plant. It is by far the finest of the Camellias, bearing lovely pink semi-double flowers 6 inches in diameter, with bright yellow spreading stamens.

At Scorrier House, Tremough, and Pengreep, among the varieties that do best are *Mathotiana*, the largest, *anemonæflora*, very profuse flowering; *Countess of Orkney*, *Donkelaari*, which comes very early; and the old *japonica*. *C. Reticulata* is the handsomest of the Camellias, but needs a warm and sheltered place.

CAMPANULA (*Hairbell*). — The alpine kinds are charming for rock gardens, and not as a rule difficult to cultivate. A group of kinds somewhat larger than the high alpines adorn rocks and old walls on the mountains, and may be used for these in our gardens. Some are pretty window plants. Numbers are good border and edging plants of easy culture; the tall and straggling kinds admirable for the wild garden, or rough woody places or hedgerows, but these tall species must not be used much in the flower garden or mixed borders, as their time of bloom is short. Some of the annual kinds, if well grown, are showy. The Canterbury Bell is one of the finest of biennials, the tall chimney Campanula a very handsome and precious plant for garden or greenhouse.

C. ABIETINA.—Forms close mats of leaves 2 inches high, and gives a delightful lot of open starry reddish-purple flowers in May, on wiry stems 9 inches high. A rock garden gem.

C. ALLIONI.—An alpine kind forming a network of succulent roots, with stemless rosettes of leaves an inch long, from which arise stalkless erect flowers. It thrives in exposed positions in the rock garden in a moist, free, and sandy loam; dislikes limestone. Division. Alps.

C. ALPINA (Alpine Hairbell).—Covered with stiff down, giving it a slightly grey appearance, 5 to 10 inches high; flowers of dark fine blue, scattered along the stems, margins of mixed border, and the rock garden. Division or seeds. Carpathians.

C. ARVATICA (Acutangula).—A pretty Spanish kind affording a profusion of starry deep violet flowers in July and August. A good moraine plant 4 inches high.

C. CÆSPITOSA (Tufted Hairbell).—A charming little plant, its roots ramble very much, and it soon forms large patches in any garden soil. Excellent for edgings and rocks, the angles of steps in rock gardens, and where flagstones are used to

form paths it is one of the plants that run about among the stones with pretty effect. The white kind is as free and useful as the purple one.

Alpine Hairbell in rock garden.

C. CARPATICA (Carpathian Hairbell).—A dwarf plant of free-flowering habit, the light-blue flowers large and cup-shaped, borne on footstalks 12 to 15 inches high in July and August in succession. There are pale and white forms of this plant and the hybrid forms, none of them better than the wild plant. *Isabel, pelirformis, Riverslea,* and *White Star* are some of the best of these.

C. CENISIA (Mont Cenis Hairbell).—A high alpine plant growing among *Saxifraga biflora* on the sides of glaciers, making little show above ground but vigorous below, and compact rosettes of light green leaves, with blue flowers. It should have a sandy or gritty and moist soil on the rock garden among the smallest plants. Division.

C. FRAGILIS (Brittle Hairbell).—The young branches are coated with soft down; the flowering branches prostrate, 12 or 15 inches long; the flowers 1 inch or more in diameter, delicate blue. A variety *C. hirsuta* is covered with stiff down, and looks almost woolly. Division, cuttings, and seeds.

C. GARGANICA (Gargano Hairbell).—A compact plant of prostrate habit, the starry erect flowers in branching racemes, pale blue, shading off to white towards the centre in summer, thriving in a rock garden or a border. There is a white variety. *C. H. Paine,* a soft violet blue with white centre, is the best of all. Division or by cuttings taken in early spring.

C. GLOMERATA (Clustered Bellflower).—A handsome plant about 2 feet high, the stems terminated by dense clusters of pretty intense purple flowers. The variety *Dahurica,* with deep purple heads of flowers, is of exceptional merit.

C. MACRANTHA.—The stems of this handsome plant rise to a height of 5 feet, terminated by clusters of large deep blue flowers almost as large as Canterbury Bells, but less contracted at the mouth of the tube. It is a free vigorous perennial, best fitted for naturalisation in woody places. Its variety *C. l. macrantha* is more stately, with huge violet-purple bells. *C. Van Houttei* is regarded by some as a variety of the above, though the evidences of hybrid origin are not wanting. It is of elegant and graceful habit, growing 3 feet high, and producing glossy pale purple bells 3 inches long in abundance. A first-rate border plant of easy cultivation. June, July. Division.

C. MACROSTYLA (Candelabra Bellflower).—A singular plant, having large flowers, with blue netted veins on a white ground, which gets purple at the edges, and with a huge stigma. It is wholly distinct from any of the Campanulas in our gardens, and well deserves culture. It is readily recognised by its candelabra habit of

Campanula carpatica.

growth, and is a fine annual of easy culture. Asia Minor.

C. MEDIUM (Canterbury Bell).—A familiar old plant having many varie-

ties of various colours, bearing single flowers, doubles, in which two, three, and even four bells seem to be compressed into the outer one; and duplex flowers, in which one bell grows in the other, the two combined resembling a cup standing in a saucer. There are many colours, such as white, lavender, mauve, several shades of purple, pink, rose, salmon, and blue. The habit of the plants as a rule is

Campanula pyramidalis.

compact when in bloom, ranging from 18 to 24 inches in height, and forming perfect pyramids of flowers.

March or April is the best time to sow seed in a warm spot in the open ground, but it is much safer to sow some also in shallow pans or boxes placed in a frame or on a shelf in the greenhouse. When the seedlings are large enough to handle, prick them out into some shady spot, and keep them watered until well rooted. From that time they may be safely left to take care of themselves until September, when they should be transplanted into their permanent places in the flower borders, where they will get well established before the winter and develop blooming crowns for the next year.

C. PERSICIFOLIA (Peach-leaved Bell flower).—A beautiful kind, with cup-shaped flowers 2 inches across, in July and August. Besides the double blue and white forms, there is an interesting variety named *coronata*, in which the corolla is doubled. There are many varieties single and double, white and blue or purple among them, and worth a place—*Daisy Hill mœrheimi*, *Alba grandiflora maxima*, *Pallida grandiflora*, and *Felham Beauty*, a handsome single blue, are the best. All the varieties of this group revel in a cool soil, shade, or moisture.

C. MURALIS (Wall Hairbell).—A dense tufted evergreen kind, with small bright green leaves, so dense as to obscure the foot-stalks, 1 inch or more in length, by which they are supported. The flowers, pale blue, appear in masses in June, and continue with some freedom for weeks. It spreads slowly by underground stems, and succeeds in crevices of the rock garden or border. Dalmatia.

C. PULLA (Austrian Hairbell).—One of the most beautiful of the alpine Hairbells, a native of the Austrian Alps, on high mountain pastures; in the rock garden it should have a shelf of soil in which peat and sand have been mixed. Division.

C. PULLOIDES.—Perhaps the finest of the dwarf Campanulas, and a plant of unsurpassed beauty. Habit, close and tufted; 6 inches high; affording in June and July a wealth of glowing purple, pendent, bell-shaped flowers that impel admiration. A gem for the rock garden. Quite happy in cool loam and leaf mould. Division in spring.

C. PUSILLA.—Smaller than *C. cæspitosa*, rarely exceeding 4 inches in height, the shining green leaves heart-shaped and toothed, the flowers pale blue, in racemes, in June and July. Very gritty moist loam in the rock garden is best for it. The silvery blue, *Miss Willmott*, is the best form. Switzerland.

C. PYRAMIDALIS (Steeple Bellflower).—A vigorous plant, with thick and fleshy flower-stems, rising to a height of 4 to 6 feet; the flowers, close to the stem, giving the inflorescence a steeple-like form. The flowers are blue or white, coming in succession over a considerable time in July, August, and September. Though not quite a biennial, it is better in general cultivation to treat it as such, as from seedling plants, well grown on during the first year, the finest stems arise. A border flower of the highest merit in favourable soils; occasional batches of seed should be sown to keep up a supply. It is often grown in pots for the house both in England and France.

C. RADDEANA.—A species of distinction and merit from the Caucasus of the easiest cultivation. Height, 9 inches to 12 inches, the lax branching stems bearing a rich profusion of large pendent bells of the deepest purple. An acquisition. Quite happy in chalky loams. Division.

C. RAINERI (Rainer's Hairbell).—A dwarf, sturdy plant, 3 to 6 inches high, each shoot bearing a large dark blue flower. It thrives best in sunny positions in loam freely intermingled with pieces of stone, and well watered in dry weather, and is a gem for the rock garden. Alps of N. Italy.

C. ROTUNDIFOLIA (English Hairbell).—Of this pretty wild plant we have a white variety, generally dwarfer, and there are several forms all beautiful, and of easy culture in any soil. These are all excellent border flowers, and also for the rock garden. *C. R. Hostii*, and its white form, are also good, and flower in July.

C. STANSFIELDI.—A hybrid of unrecorded parentage, and one of the most charming of rock garden plants. Greyish ovate, acutely pointed leaves, and horizontally disposed bells of violet-purple colour on wiry stems, 6 inches high, mark it well. A good grower of easy cultivation, flowering in July, it is readily increased by division. Succeeds best perhaps in chalky loam or soil containing much mortar rubble or the like.

C. TURBINATA (Turban Bellflower) is a dwarf plant with greyish-green leaves, the flowers borne singly on stems about 6 inches long, deep blue, and 1½ inches across; a charming plant for choice border or rock culture. Transylvania.

C. WALDSTEINIANA.—A gem-like species from Croatia, and quite unique. Hardy and deciduous, it reaches 4 to 6 inches high at its best, the stems freely furnished with glaucous ovate acutely pointed leaves, each stem terminated by a solitary salver-shaped, azure-blue flower with a base of deepest violet. Happy in rich loam and old mortar rubble. Increased by careful division in spring.

C. G. F. WILSON.—A fine hybrid of *C. pulla* and *C. carpatica* that no collection should be without. The cupped flowers are a modification of those of the parents named, and of rich purple colour. Free flowering, vigorous and hardy, it is one of the most amiable and desirable. Height, 6 inches. June, July. Division.

CAMPTOSORUS (*Walking Leaf*).—*C. rhizophyllus* is a curious N. American Fern, remarkable for its narrow fronds, which taper into slender prolongations, and take root at the tips like runners, giving rise to young plants. Thrives in gritty loamy soil in a somewhat shaded position in the rock garden or hardy fernery.

CANNABIS SATIVA (*Hemp Plant*).—A vigorous annual largely cultivated for its fibre. In our country it is 4 to 10 feet high, but in Italy sometimes 20 feet high. In plants growing singly the stem is much branched, but in masses is generally simple. It should be sown in the open ground early in April; to get larger plants it is best to raise it in frames. It loves a warm sandy loam, and is one of the few plants that thrive in small London gardens.

CARAGANA (*Siberian Pea-tree*).—A curious group of wiry bushes of the Pea order which, as seen in gardens generally, are not pretty, but as the name occurs so often, and the wretched appearance they usually present may be in part owing to their being grafted, I give them a place. They are mostly rock or desert shrubs of arid regions in Central Asia, and the species are *C. arborescens* and its varieties, *C. aurantiaca*, which is the prettiest, and would perhaps be a graceful rock shrub, *C. chamlagu*, *C. jubata*, *C. microphylla*, *C. pygmæa*, and *C. spinosa*.

CARBENIA (*Blessed Thistle*).—*C. benedicta* is a handsome biennial, having bold, deep green leaves, blotched and marbled with silvery white. It is useful for associating with plants of fine foliage. It grows freely in a thin shrubbery, or on banks of rubbish. S. Europe. Syn. *Cnicus benedictus*.

CARDAMINE (*Cuckoo-flower* or *Lady's Smock*).—Plants of the Wallflower order, few of which are cultivated, the best being the native Cuckoo-flower in its double form. This will grow well almost anywhere, although, like the wild plant that colours the meadows with its soft-hued flowers, it delights in swampy ground. Division. *C. trifolia* is a pretty species, with white flowers, from Switzerland; 9 to 12 inches high; a border or rough rock plant.

The Toothworts (syn. *Dentaria*), now included in this genus, are interesting spring-flowering plants. They grow best in sandy or peaty soils. Their flowers are welcome in early spring, remain some time in beauty, and they are easily increased from the small tuber-like roots. Some, like *C. bulbifera* (Coral Root), bear bulblets on the stem, and from these the plant may be increased. *C. digitata*, a handsome dwarf kind, about 12 inches high, flowers in April; rich purple, in flat racemes at the top of the stem. *C. maxima* is the largest of the species, being 2 feet high, with many pale purple flowers, a native of N. America.

C. pinnata is a stout kind, pinnate leaves; from 14 to 20 inches high, flowering from April to June, with large pale purple, lilac, or white flowers in a cluster.

CARDUNCELLUS PINNATUS.—A pretty little alpine plant of the Thistle order, with finely-cut leaves and attractive heads of lilac flowers like a Cornflower. If in strong or rich soils it spreads from the root and becomes rank, but in light dry soils and full sun it makes neat tufts of about 8 inches, hardy, and not troublesome. Division. S. Europe.

CAREX (*Sedge*).—Grass-like herbs of northern and temperate countries, few having a place in the garden.

C. PANICULATA is a very large Sedge, like a dwarf Tree Fern, with strong thick stems and masses of drooping leaves, forming dense tufts, 1 to 3 feet high; flowers in a large and spreading panicle. It is very effective in wet places. The finer specimens are of great age, and are found in the bogs where the plant is wild.

C. PENDULA.—A graceful British Sedge, with evergreen foliage, numerous flowering stems 3 to 6 feet high, the leaves 2 feet or more in length. When in flower the graceful spikes, from 4 to 7 inches long, are pretty, and the plant is useful for shady or moist spots. Common in Britain in evergreen patches in marshy woods.

C. FRASERI and C. SCAPOSA are pretty evergreen Sedges for shady spots.

CARPENTERIA CALIFORNICA.—A lovely hardy shrub for walls in southern districts, 6 to 10 feet high, with long, narrow, pale green leaves, and clusters of large white fragrant flowers. The first account of it in England was from Mr Saul, of Washington, who sent specimens of it to *The Garden* in 1880. It is nearly related to the Mock Oranges, which it resembles, but is handsomer; thrives in light warm soil, and increased from suckers, cuttings, or seeds.

CARPINUS (*Hornbeam*).—*C. betulus* is a native tree, especially of the south, sometimes attaining a height of 70 feet, frequent in some woodlands, and in Epping Forest. There are several varieties of this tree, such as the fern-leaved, cut-leaved, and purple kinds, and also the never-failing variegated kind. The common kind is often used as a fence plant, and also in many Continental gardens to form green walls and hedges. It is one of the best of all woods to burn, and if we ever go back to the best of all ways of firing for a dwelling-house in the country—a wood fire—it should not be forgotten. It is easily lighted, burns cheerfully and equably, and gives a good heat. Other species are *C. caroliniana, cordata, japonica, orientalis,* and *Turczaninovii.* Three species of Hornbeam are natives of Japan, viz., *C. japonica, C. cordata,* and *C. laxiflora,* the last belonging to the true Hornbeams typified in our native species *C. betulus;* the other two to the group which some botanists have made a separate genus. They differ from the "true" Hornbeams in the trunks having a scaling bark, as distinct from the smooth trunks seen in our native species; also in the bracts of the fruit clusters being enfolded at the base and almost entirely covering the nut. In *C. betulus* and its allies of the "true" Hornbeam section, the nut is exposed.

Carpenteria californica in a Sussex garden.

CARYA (*Hickory*).—A distinct group of forest trees, little planted in England in our own day, but valuable in their own country for their wood. Trees of N.E. America mostly, and usually hardy, they are sometimes well over 100 feet high; in their own country inhabiting moist woods and swampy grounds, and therefore likely to be useful in ours in soil not thought good

enough for many trees. Among them are: — *C. olivæformis Pecán*, a tree which sometimes attains to a height of over 150 feet, with a trunk diameter of 6 feet, and which bears a delicious nut. *C. amara* (the bitter nut), a tree of about 100 feet in moist woods, from Canada downwards, ascending high on the mountains. *C. aquatica* (Water Hickory), a swamp tree sometimes nearly 100 feet high in wet woods and swamps from Virginia south and westwards. *C. alba* (Shellbark Hickory) also often over 100 feet high; a native of Canada and of the Western and Southern States. *C. sulcata* (King-nut), a tall forest tree over 100 feet high in the New England States and westwards. *C. tomentosa* (Fragrant Hickory) growing nearly 100 feet high and inhabiting the cold regions of the West and New England. *C. microcarpa* (Small-fruited Hickory), a tall tree of nearly 90 feet high; New England and westwards. *C. porcina* (Pig-nut Hickory), a very tall tree of over 100 feet, bearing very bitter seeds, also a tree of cold northern regions.

CARYOPTERIS.—*C. mastacanthus* is a small shrub with greyish foliage, distinct in habit, and with purple flowers, not quite hardy perhaps in all soils, but pretty on warm banks and in warm gardens. There is a white variety. It would group well with the dwarfer shrubs, and in cool districts and on cool soils it will grow against warm walls. On warm soils it would come in well with borders of greyish plants, such as the Lavenders.

CASSIA MARILANDICA (*Wild Senna*).—The only hardy member of a great family, with us it is nearly herbaceous, dying back, and so deserving a warm place in a free soil. It is best in our southern counties and in free soil. N. America.

CASSINIA FULVIDA (*Golden Bush*).—A distinct, half-shrubby plant of a yellowish hue. Hardy, and easily grown over a large area of our country. It is more effective in groups than when planted in the usual dotting way. It is evergreen, and carries its colour throughout the year. Best suited for bold rock gardening, or a place among dwarf shrubs. New Zealand.

CASSIOPE (*Himalayan Heather*).—Tiny alpine bushes, thriving in peaty soil well drained, as they are all impatient of stagnant moisture about their roots, while absolute shade from the midday sun is also necessary. The best plan is to raise small banks of peat, and plant them on the top, taking care that they do not want for water both at the roots and overhead.

Cassiope fastigiata.

They are increased by division, rooting freely when pegged down. *C. fastigiata* is one of the most fragile and beautiful of alpine woody plants; it may be grown without much trouble with the more common *C. tetragona*. Both are pretty for the rock garden.

CASTANEA (*Chestnut*).—A noble tree, native of E. and S. Europe. There are fine old trees in many of

our country seats in all parts of the south of the country, though excepting in the warmer counties, the fruit is not as good as on the Continent of Europe. The Chestnut thrives best in airy and warm situations, and upon stony or free soils, not caring much for chalk or heavy soils. It is easily raised from seed planted directly where it is to grow. There are on the Continent, where the tree is much more grown than here, a good many varieties grown for the value of their fruits. There are a few other species, such as *C. crenata* (Japan), *dentata* (N. America), and the dwarf *C. pumila* of the southern States of N. America, but these are of slight value compared to that of *C. Vesca*, the beauty of old trees of which is very great, as seen at Shrubland, Tortworth, Cowdray, and many other places. The names "Sweet" and "Spanish," applied to this tree, are needless and confusing.

CASTANOPSIS CHRYSOPHYLLA (*Golden Chestnut*).—A beautiful evergreen tree of the Pacific Coast of N. America, coming between the Oaks and the Chestnuts. In moist valleys near the sea the finest trees reach a height of 150 feet, but it is often only a low shrub on the mountain sides. At a little distance these low densely-branched little trees look like a Bay or a Holly Oak, only the leaf is smaller and narrower, with a powdery golden under-surface of beautiful effect when stirred by wind. It blooms in September and ripens its fruits, like tiny sweet Chestnuts, in the succeeding autumn. Though borne freely upon little plants only 2 feet high, they seldom reach perfection in this country. The plant is hardy even in the north of Scotland, and does well about Edinburgh and in sheltered parts of the west country, thriving in good heavy soil, but growing very slowly, so that it must never be put near greedy shrubs that would outgrow and smother it. Being very averse to removal, it is mostly planted from pots. The hardiest form of all is *minor*, from the mountain tops of California—a pretty little shrub for raised banks.

CATALPA.—Handsome flowering trees of the Bignonia order, one of them forming a beautiful tree even in London gardens.

C. BIGNONIOIDES (Indian Bean).—A handsome tree, hardy in S. Britain and the kind which flowers so well in London. There is no more precious lawn tree for good shade and flowering at a season when all the early trees are out of flower. It is best propagated by seed, and is not difficult about soil. N. America.

C. SPECIOSA (Catawba Tree).—A forest tree in America, westwards, and is little known in our country yet, though promising to be a forest tree; reaches 120 feet high in its own country. It deserves a very good position among the best flowering trees for lawn or for a grove. *C. Bungei* and *C. Kæmpferi* are two other kinds known in gardens, both inferior in size to the foregoing trees, and less attractive.

CATANANCHE (*Blue Cupidone*).—*C. cærulea* is an old border plant, about 2 feet high, flowering in summer;

Catananche cærulea.

fine blue, and growing freely in borders and margins of shrubberies. There is a white variety. Catananche is easily grown in any soil, and quickly raised from seed. S. Europe.

CEANOTHUS (*Mountain Sweet*).—Beautiful shrubs of the Buckthorn family, some hardy enough on light soils in sunny places to endure our climate, even as bush plants, though the majority form good wall plants. In all the kinds the flowers are small, but abundant. As wall shrubs it is best to prune them in April; and as all the sorts flower on the shoots of the current year's growth, from one to three eyes of the preceding year's wood should be left, reserving, or at most only topping, such shoots as are required for filling up the open spaces

on the wall. Most of the introduced kinds are of free growth in warm soil, and they flower most freely in sunny exposures. As they are for the most part natives of the Pacific slope of N. America no one should attempt their culture except in warm soil. The following are distinct and pretty :—

C. AMERICANUS (*New Jersey Tea*).—Though one of the hardiest, this thrives best against a wall, and in a dry porous soil ; the flowers, in succession from about the middle of June till August, white. E. America.

C. AZUREUS. — From the temperate regions of Mexico, where it grows as a straggling bush about 10 feet high. It is one of our prettiest wall shrubs, flowering abundantly in dry, sunny situations, the flowers bright blue, from June to September. *C. pallidus* is a handsome variety, with pale blue flowers. The result of crossing with this species may be seen in such lovely shrubs as C. Gloire des Versailles, Arnoldii, Lucie Simon, Theodore Froebel, Bertinii, President Reveil, Lucie Moser, and others, all of which have flowers in large plumy clusters, some white, others rose, but mostly of some shade of blue.

C. DENTATUS is an elegant little evergreen shrub, rarely higher than about 3 feet. The flowers, which appear in May or June, are deep blue, and continue the greater part of the season.

C. DIVARICATUS grows as a dense broad evergreen bush of about 10 feet high. It is a free-growing handsome wall plant, flowering from May to autumn, the flowers a bright blue.

C. PAPILLOSUS is a pretty little species from the mountains of California, where it is a densely-branched straggling bush 6 to 10 feet high. The panicles of pale blue flowers are borne on long foot-stalks from the sides of the young shoots. Like the other kinds, it loves the protecting of a wall, on which it blooms in summer.

C. RIGIDUS is a sub-evergreen, or in sheltered places an evergreen, rarely exceeding 6 feet in height, the branches stiff and wiry ; the flowers, in clusters on the sides of the young shoots, are deep purple, in April and May.

C. VEITCHIANUS is one of the best kinds, the flowers of a rich deep blue, in dense clusters at the ends of leafy branches.

C. VERRUCOSUS forms a thickly branched evergreen bush about 6 feet high. As a wall plant it is of free growth, and has a good effect, the flowers coming in May and during the summer months, borne in corymbs along the whole length of the young branches, often so profusely as to hide the foliage.

CEDRELA.—*C. sinensis* is a Chinese tree not yet common in gardens. The largest trees I have seen are about 30 feet high. The tree is chiefly noteworthy for the large pinnate leaves it bears. It has small yellowish flowers arranged in great numbers in pendent clusters said to be agreeably scented. It promises to be a graceful lawn tree, but has not been long enough in the country yet to speak with certainty of its hardiness, although we see it flourishing in unlikely places.

CEDRONELLA (*Balm of Gilead*) is a distinct, half-bushy herb of the Sage order, *C. triphylla* having leaves with a pungent but grateful odour, in our country 2½ to 4 feet high, varying much according to soil, and not quite hardy, but living out of doors most winters if in dry free soil and planted against walls. Seed.

CEDRUS (*Cedar*).—Noble trees of the mountains of Asia Minor and India, some hardy, and often planted on lawns. The India Cedar (Deodar) is really a tender tree, and though it may seem to promise well in seashore and favoured districts, planters should not forget that it is to the Cedars of the northern mountains they must look—the Lebanon and Atlas Cedars, which have been proved so hardy and so well fitted for our country. Nothing finer

Cedar of Lebanon.

can be within view, but they should never be planted near the house.

In books and catalogues a form called *C. Atlantica* is considered distinct enough to merit a separate name, but having seen the trees on their native mountains, I think the Atlas Cedar is the same species as the Lebanon Cedar (*C. Lebani*).

The pinetum is not only a mistake from an artistic point of view, with its stuck-about trees, but it also is so in the exposure of the trees to all the storms and accidents of weather, in-

cluding heavy snowfalls. Naturally, pines often grow together and shelter each other, and where this is so, great falls of snow do not harm them. The lower boughs fall off in due time, as is their nature, the tree often showing a bare, mast-like stem beneath its crown of leaves. Clearly, when we isolate any tree in the open and induce a tree which naturally grows upright in a great mountain forest to throw its limbs out in all directions, we expose it to an unfair test; hence the Cedars of which we in England are so proud are often swept down in numbers by heavy gales and snowfalls. The idea that every choice tree in our pleasure grounds should be set out by itself like an electric lamp-post is deeply impressed in the gardening mind, and we have to pay dearly for it. Even where the Cedars are grouped, great storms may do harm, but nothing like what happens to the isolated trees. Think of the weight that a Cedar of Lebanon, with its great spreading arms, would have to carry in a snowstorm, and how much more able to bear it are the Cedars planted in woods and allowed to grow mast-like shafts!

The cure for much of this loss and waste of valuable trees lies in planting in more natural ways and in grouping and keeping the trees together.

Cedrela sinensis.

Cedars usually inhabit high mountains, often on bare, shaly slopes, though never so well developed as when growing where a little soil collects. That soil is often of a rocky or pervious nature. Surely this points out that in country seats, instead of taking the very best soil, we should plant on rocky or sandy places where the tree will, though growing at first slowly, eventually get a safer and hardier growth than it ever would on rich deep soil.

It would be well to plant it in the ordinary woodland, in which the trees would be drawn up with a tall stem, very effective near drives or in woods. The difficulty of dealing with the Cedar is increased by its being made a kind of fetish in our nurseries, always being offered in the "specimen" state, so that nowadays it is not easy to get a nice healthy stock of young plants of it, and those offered are generally highly priced, as if they were some rare novelty instead of a tree known for some centuries. The seed of the tree is plentiful in Asia Minor and N. Africa, and it really ought to be grown in forest nurseries and offered among the other forest trees.

CELASTRUS (*Staff Vine*). — *C. scandens* is a shrubby climber from N. America, and valuable for its rapid twining growth, for trailing over trellis-work and arbours. There are several kinds not yet well known or used—*C. corticulatus, Flagellaris, hypolucus,* and *latifolius,* which promise well, and to reap their full beauty the two sexes are essential.

CELMISIA. — Charming Daisy-like plants from New Zealand, where they fill the mountain meadows with cushions of downy leaves covered with glistening Daisy-like flowers. There are upwards of thirty kinds, differing more in leaf than in their flowers, which are mostly white, though sometimes purple and very variable in size. They grow in varied situations, some in swamps, some in dry shingly places, others on moist river-banks or the gritty mountain-side. To succeed with them we need therefore to know just how each grows in its own country, and things are made more difficult by the fact that they are not fully hardy with us, and seem to dislike the moisture that gathers on their hairy leaves and stems in a wet season. The few kinds that have been introduced have never become common, though they may be seen doing well here and there. The following are in cultivation :—

C. CORIACEA, a hardy little kind not difficult to grow, and the largest in its flowers, 1½ to 3 inches across, pure white with a yellow centre, and borne on stout stems a foot long. The leaves are like those of a small Yucca, 10 to 18 inches long, covered with cottony threads and dense white down.

C. HAASTII.—A plant of strong growth with large leaves similar to, but less woolly, than those just described, the flowers, 1½ to 2½ inches across, coming upon short sturdy stems.

C. LINDSAYI forms dense tufts of leaves, 3 to 6 inches long, very white on the underside, and with white flowers 1 to 2 inches across on stems of 6 inches.

C. MONROEI is also hardy, growing well near the sea in N. Wales. Its leaves are silver-grey with down, almost sword-shaped, and very white beneath. The pure white flowers are 2 inches across, coming in early summer and lasting for a considerable time.

C. RAMULOSA is a very distinct and pretty plant, its small short leaves forming cushions completely covered with small white flowers on short stems. Among the stones of a rock garden nothing could be more charming.

C. SPECTABILIS.—In leaf, flowers, and manner of growth, this comes near *C. Monroei,* but the flower-stems are shorter, and the narrow ray-florets more or less tipped with violet. The variety *argentea* is a striking plant, hardy and free.

CELSIA (*Cretan Mullein*).—*C. cretica* is a pretty plant, allied to the Mulleins, with rich yellow flowers and polished buds ; may be treated as an annual. Well grown in good soil, it is distinct and effective. Candia, N. Africa.

CELTIS (*Nettle-tree*).—Trees of the Elm order, natives of temperate countries, much mentioned in books, and introduced to Britain many years, but have never made much way with us, and are less attractive to planters than other trees of the same order. Among a crowd of synonyms, the following are the names :—*C. australis, caucasica, glabrata, japonica, mississipiensis, occidentalis,* and *Tournefortii.* Some of the kinds are tropical, and not hardy in our country.

CENTAUREA (*Knapweed*).—Perennial or annual herbs inhabiting S. and Middle Europe, some being good garden plants, most of them hardy. Some of the southern species require the greenhouse in winter, but, making free growth out of doors in summer, are freely used for their silvery foliage.

C. BABYLONICA.—A distinct perennial, tall and with silvery leaves, hardy, and when in good ground its strong shoots with yellow flowers reach a height of 10 or 12 feet. The bloom, which continues from July to September, is less attractive than the leaves, but the plant is at all times picturesque. A free, sandy loam suits it best. Seed. Levant.

C. CLEMENTEI.—A silver-grey-leaved plant of fine form. Small plants from seed are useful for edging bold beds, and

Celsia cretica (Cretan Mullein).

when too large for that purpose they may be transferred to borders, or planted out singly on grass. The blossoms are best picked off, as they detract from the beauty of the plant.

C. CYANUS (Blue Cornflower).—A beautiful native annual of easy culture, often sowing itself. The young plants stand our hardest winters, and flower better grown thus than if sown in spring. It is best sown in September, either where it is to flower, or in beds to be transplanted. Self-sown plants, too, may be transplanted, or allowed to remain where they come up, as they are often the finest plants. The many garden varieties range through white, rose, sky-blue, striped, to dark purple.

C. DEALBATA.—A hardy perennial, with graceful and somewhat silvery leaves, 15 to 18 inches high, flowering in summer; rose-coloured. Borders. Divisions. Caucasus.

C. GYMNOCARPA.—A half-shrubby plant from the south of Europe, nearly 2 feet high, with hard, branching, bushy stems, and elegantly cut leaves, covered with short whitish-satiny down. Useful as it is for edging, it is when grown in fine single specimens that its beauty is most seen.

C. MACROCEPHALA (Great Golden Knapweed).—A strong plant from 4 to 5 feet high, with a great golden head of bloom. In the back part of a herbaceous border, or where herbaceous plants must compete with the roots of trees and shrubs, this robust plant deserves a place. Armenia.

C. MONTANA (Mountain Knapweed).—A handsome border plant, 1 to 2½ feet high, with slightly cottony leaves, and flowers resembling those of the Cornflower. There is a white and a red variety, all thriving in borders, margins of shrubberies, or the wild garden in any soil. Division.

C. MOSCHATA (Sweet Sultan).—A fragrant annual, of which there are two shades—delicate purple and creamy white, the first giving the finest flowers; but both are valuable. Aphides are very partial to the young seedlings, and unless

Mountain Knapweed.

the pests are quickly cleared off, the plants soon dwindle away. The first essential is a calcareous soil, and any soil deficient in lime should have lime rubble worked into it. The best time to sow is about the middle of April, in an open and sunny place, sowing the seed where the plants are to remain, as they do not move well. Valuable, too, for pot culture, and sown in autumn may be had quite early. Syn. *Amberboa moschata*.

C. RAGUSINA.—A showy silvery-leaved plant, tender, but of rapid growth out of doors in summer, and valued for the summer garden. Cuttings should not be cut away, but pulled off with a "heel," so as to have a firm base; small firm shoots should be preferred; in taking them the knife should be used very little, and each cutting put singly into a small 2½-inch pot filled with a mixture of loam and leaf mould. A cold frame from which frost can be excluded is their best winter quarters; the leaves should be kept dry, as they are rather liable to damp during the short days. They also winter well in an airy vinery or greenhouse.

C. SUAVEOLENS (Yellow-sweet Sultan).—A pretty citron-yellow hardy annual and favourite border flower, thriving best in light dry soil. Sow in beds in April, raising one batch in frames and sowing another in the open air in light rich earth where it is to remain.

CENTRANTHUS.—*C. macrosiphon*, a hardy Spanish annual of the Valerian order, with pretty rose-coloured flowers, is useful for the rock garden or flower border. It may be sown in September and pricked off into pots for winter for transplanting in spring, or again in the open ground in March and April, the seedlings being thinned out about 1 foot apart. There are several varieties—white, red, and two-coloured, and a dwarf form.

C. RUBER (Red Valerian).—A handsome, hardy border plant from the Mediterranean, and an old inhabitant of gardens, often also naturalised. There are two or three varieties—white, purple, and red or crimson. It has stout stems, woody at the base, and bold clusters of flowers, blooming in June and through the summer. It is often naturalised on walls, ruins, and on rocky or stony banks. Seeds and cuttings.

CERASTIUM (*Mouse-ear Chickweed*).—Dwarf herbaceous or alpine plants of the Pink order, containing few garden plants of value, and these mostly used as edgings, among the best being *Biebersteini*, *tomentosum*, and *grandiflorum*, all hardy plants of easy culture, and increase in ordinary soil.

CERATOSTIGMA POLHILLI. — A pretty creeping shrub from a great height in the mountains of W. China, with grey leaves and stems and clusters of charming pale lavender-blue flowers. It is hardy in warm, well-drained nooks of the rock garden, and is increased by cuttings.

C. GRIFFITHIANUM.—Makes an interest- bush up to about 3 feet in height. The growth is stouter than in the others of this genus and the leaves are tinted brown, flowers blue.

C. PLUMBAGINOIDES is the plant so long known as *Plumbago Larpentæ*, which provides effective patches of blue in late summer.

C. WILLMOTTIANA is a recent addition from China, the species forming a wiry-limbed bush of several feet high, and producing a great wealth of clear blue flowers during many weeks. Of quite easy culture.

CERCIDYPHYLLUM. — A very beautiful tree, so far hardy in Britain. It is a forest tree abundant in certain parts of Japan on the slopes of hills and mountains, reaching a height of between 80 and 100 feet. We read that it cannot be grafted, which is a blessing, as the natural way of producing it is much better.

CERCIS (*Judas Tree*).—Flowering trees of much beauty of bloom and form of tree. Of the three different kinds of Judas Tree in gardens, the most beautiful is *C. Siliquastrum*, from S. Europe, which for nearly three hundred years has been a favourite in English gardens. It is from 15 to 30 feet in height, and thrives in a light, deep, loam soil. There are several varieties, differing chiefly in the colour of the flowers. It is of slow growth, and though young specimens flower profusely, only very old ones show the picturesque growth of the tree. Other kinds are *C. Chinensis*, and the better-known *canadensis*, or Red Bud, a handsome tree of the American forests.

CERINTHE (*Honeywort*).—Annual or biennial herbs of the Borage family. *C. aspera* bears many yellow flowers, the tube of which is black at the base. In *C. minor* the flower-stems arch over, so that at the apex of the stem the delicate yellow tube-shaped bloom is hidden by the pale green leaves. *C. retorta* is a beautiful kind, the floral leaves of a purple tint, and from

among them peep the yellow purple-tipped flowers. They are half-hardy annuals, and should be sown in early spring on warm borders or in frames, and afterwards planted out in good soil. S. Europe.

CETERACH (*Stone Fern*).—This is now placed with the Aspleniums, but is known so well under the above name that we retain it. *C. officinarum* is a distinct and beautiful little native Fern, admirably suited for rock or alpine gardens, as it thrives best when planted between the chinks of rocks or of stone walls. The chinks and crevices should be filled with a mixture of sandy peat and pounded limestone.

CHAMÆBATIA (*Tarweed*). — *C. foliolosa* is a little shrubby plant of the Rose family, remarkable for the Fern-like beauty of its leaves; the flowers white and something like those of a Bramble. It grows about 1 foot high, forming a dense spreading tuft, and covering the ground in California, its native country. I have seen it growing in mountain districts often covered with snow, and believe it to be worth trial in our rock gardens.

CHAMÆPEUCE (*Fish-bone Thistle*). —Spiny-leaved plants allied to the Thistle. *C. diacantha* has foliage of shining green, marking with silvery lines, and the spines are ivory white. *C. Casabonæ* has deep green white-veined leaves with brown spines. Both kinds grow in compact rosette-like masses about 9 inches high, till the second year, when the flower-stems grow 2 to 3 feet high. They require light, well-drained soil and a warm position, and should seldom be watered. Seed sown in February.

CHAMÆROPS.—Handsome palms, hardy, and giving distinct effects in the garden.

C. Fortunei (The Chusan Palm).—A valuable Palm, often confounded with *C. excelsa*. It is stouter and has a more profuse matted network of fibres round the bases of the leaves; the segments of the leaves are much broader, and the leaf-stalks shorter and stouter, being from 1 to 2 feet long, and quite unarmed. It grows 12 feet or more high, and has a spreading head of fan-like leaves, and is hardy. If small plants are procured, grow them on freely for a year or two in the greenhouse, and then plant out in April, spreading the roots a little and giving them a deep loamy soil. Plant in a sheltered place, so that the leaves may not be injured by winds when they get large. A gentle hollow, or among shrubs on the sides of some sheltered glade, is the best place. *C. humilis* is also hardy, at least, on sandy soil.

CHEIRANTHUS (*Wallflower*). — Beautiful plants made familiar by the favourite Wallflower (*C. Cheiri*), the only kind much grown in gardens. It is a native of S. Europe, but naturalised on old walls, in quarries, and on sea-cliffs. It loves a wall better than any garden; it grows coarsely in garden soil, but forms a dwarf enduring bush on an old wall if planted in mortar, and grows even on walls quite new. No variety is unworthy of cultivation, and the choice old garden kinds—the double yellow, double purple, double orange, dark, etc.—are worthy of a place among the finest border plants.

The double perennials are the yellow, dark crimson, red, and dwarf yellow. The yellow is most common, and a beautiful clear-coloured kind it is, a great favourite with cottagers, who propagate it by putting in slips about the time the plants are in flower. It can be propagated freely by means of slips put in under hand-lights in sharp sandy soil, and the plants will flower the next spring. The old dark crimson is now almost extinct; in colour the flowers are almost black, and very striking; the dwarf yellow has flowers of a dull, almost buff tint; the Raby Castle variety is valuable and sturdy.

Many persons sow seed of Cheiranthus too late—in June and July, instead of April and May. If dry weather follows close on the sowing, or after the plants have grown 2 or 3 inches, they receive a check, and instead of being dwarf, vigorous, and bushy they are thin and poor. The winter will sometimes injure the Wallflower severely, especially when very severe frost follows close on heavy rains, and the stronger and better rooted the plants are the more likely are they to stand the weather. The plants used for filling beds should have been once transplanted at least, because the moving induces them to throw out fibry roots near the surface, and they can be lifted with soil adhering to them. When the Wallflower is allowed to grow where it is sown, a strong tap-root is formed, which strikes deep into the soil, and but few surface roots are put forth. In transplanting from the seed-beds, it is well

to pinch off the tap-root, and thereby induce fibrous roots.

C. ALLIONII.—Said to be a hybrid. Flowers long and well in my garden.

C. ALPINUS is a sub-shrubby alpine Wallflower from Scandinavia, forming bushes nearly 1 foot high, covered in May with clusters of sulphury-yellow flowers. Good for rock garden.

C. LINAFOLIA.—A new species from Spain, and is one of the best rock plants introduced.

C. PAMELA PERSHOUSE is a hybrid of the above and *C. Allionii*. A lovely plant of perennial habit, bearing the clear orange flowers of the last-named species in handsome heads. *C. Marshalli* is also a fine perennial hybrid sort with flowers of rich orange in large heads. Both are sub-shrubby. Increase by cuttings.

All these perennials prefer dry soil during winter, or a place on rough stone walls. Propagation is by cuttings, and top dressing with fine soil often induces the summer wood to root freely, and by autumn a good stock can be had.

CHELONE (*Turtle-head*). — N. American plants nearly allied to Pentstemon, the species in cultivation are handsome border plants, flowering in late summer and in autumn. *C. Lyoni* grows from 2 to 3 feet high, forms a dense mass of stems, with deep green foliage, from July to September bearing dense clusters of showy pink blossoms. *C. obliqua* is taller and more slender, but the colour of the typical form is a richer pink, and there is a white-flowered variety. Both are of easy culture, thriving in open borders of good deep soil, and increased by seeds, cuttings, or division of the roots. These plants, though bearing pretty flowers, and free in growth, are not of high garden value.

CHENOPODIUM (*Goosefoot*). — Annuals or biennials, few of much garden value, except *C. Atriplicis*, a vigorous Chinese annual, with erect reddish stem, slightly branched, over 3 feet in height, and with its young shoots and leaves covered with a rosy-violet powder, pretty in foliage in any soil. *C. scoparium* (Belvedere) is a graceful annual plant, like a miniature Cypress in form, and worth a place among curious annual plants. *C. Blitum capitatum* (Strawberry-blite) is a hardy annual, growing from 1½ to 2 feet high, the flowers small, followed by high-coloured fruit calyxes resembling small Strawberries. Sow in April in the open air.

CHIMAPHILA (*Pipsissewa*).—Small shrubby plants of the Heather order, natives of the dry woods of N. America. *C. maculata* (Spotted Winter-green) has small leathery leaves variegated with white, 3 to 6 inches high, and is pretty for a half-shady and mossy, but not wet, place in the rock garden, with such plants as the dwarf Andromeda and the Pyrola, and succeeds best in very sandy leaf-soil. *C. umbellata*, with glossy, unspotted leaves and somewhat larger reddish flowers, is also suited for like positions.

CHIMONANTHUS (*Winter Sweet*).—*C. fragrans* is a lovely shrub, which in our country enjoys a wall, flowers in December and January, of delicious fragrance; brownish-yellow, marked with purple inside; and precious for gathering for the house. The best variety is *grandiflora*, its flowers being longer and more open, but the shrub varies a little from seed. It does best on a wall with a southern or western aspect. A few shoots with blooms upon them placed in a room last a long time, and diffuse their pleasant fragrance. In light or warm soils in the south it thrives as a bush, needing no pruning or other care; best on a sunny bank. On walls, moderate pruning is needed, mainly shortening rampant shoots and removing weak wood. Layers and seed. Japan.

CHIONANTHUS (*Fringe Tree*).—A beautiful, small, hardy tree of the Olive family, well grown in this country in sandy loam; in early summer it bears long clusters of white flowers, with petals long and narrow like a fringe. N. America. A newer species is the Chinese *C. retusus*, which is not so pretty, though its flowers are white and fringed.

CHIONODOXA (*Snow Glory*). — Beautiful early spring-flowering bulbs, flowering with the Snowdrop, and later, and forming a precious addition to our garden flora, growing and increasing freely in most soils. It is well to arrange successive groups in sunny and cool parts of the same garden. The bulbs should be planted not less than 3 inches deep.

C. GIGANTEA (Iridescent Snow Glory).—A very handsome plant of robust habit, with broader leaves and taller spikes than in any other kind. The colour of the flowers is soft violet or porcelain blue with a small white centre, coming some weeks

later than the early kinds. A white form of this plant is now to be had, and a variety *albo-rosea*, with flowers delicately tinged with rose, but nothing can surpass in lovely and changing colour the wild form.

C. LUCILIÆ.—Opening from early in February, with starry flowers an inch or more across and in many shades, from pale to deep blue, shading to a white centre. It is found in three or four well-marked forms: *alba*, a white kind with large flowers, found wild with the blue form, but scarce in gardens. *Rosea* is a scarce variety bearing pink flowers; *pallida* has flowers of a very light blue; and *Boissieri*, the best of the late flowering sorts, shows bright, deep colour.

C. NANA (Dwarf Snow Glory).—A dwarf kind from Crete rarely more than 4 inches high. Its flowers are small but attractive, and carried in dense spikes of white or pale bluish lilac.

C. SARDENSIS (Sardis Snow Glory).—A beautiful plant with flowers of rich deep blue, free from the pale shading of other kinds, the white eye being sharply defined. It flowers during February and March according to aspect, the effect of its flowers being very good. Several varieties are grown, but the typical kind surpasses them all in beauty. Mountains of Asia Minor.

C. TMOLUSI (late Snow Glory).—A dwarf variety of strong growth and latest of any in bloom. Its large flowers are of rich blue, with a large white eye faintly outlined in purplish-blue, and with a touch of deeper colour on the tips of the petals.

CHOISYA TERNATA (*Mexican Orange-flower*).—A handsome shrub; in the south and west often thrives with the shelter of a wall and a southern or western aspect, and in high ground, at least, as a bush. It is fast-growing, the flowers a lovely contrast to the deep rich green foliage, best in free, warm soils; in the north and Midlands against walls.

CHRYSANTHEMUM. — Perennial and annual plants, some of which are of great value for the garden.

C. ARCTICUM.—A good plant for the rock garden, about a foot high, flowering all the summer; white, tinged with lilac or rose.

Chionodoxa sardensis.

C. CARINATUM (Tricolor Chrysanthemum).—A showy annual from N. Africa, which varies much in cultivation, and is valuable if only for its yield of flowers for cutting. There are double white and yellow forms, and the showy ones known as *C. Burridgeanum*. Dunnett's varieties of the same plant are also good. They are propagated from seeds sown in April in open beds or borders where the plants are to flower.

C. CORONARIUM (Crown Daisy).—A handsome annual 2 to 3 feet high in its wild form in S. Europe and N. Africa, and in cultivation breaking into a number of forms, few of them so pretty as the single wild flower, pale yellow or buff, treated as a half-hardy annual, and sown in good ground in April.

C. INDICUM.—The parent of the numerous varieties of the hybrid Chrysanthe-

mum. Although in our country, generally, open-air culture will often be impracticable, the outdoor kinds are so pretty that it is worth while trying to secure the best kinds where the climate allows of their growth out of doors.

Paris Daisy (*C. frutescens*).

In many well-kept gardens there are open spaces on the walls, and the question is often asked: What can be done to hide them? The answer is: Train Chrysanthemums upon them; if well nailed in they take up but little room, and afford a pleasing background to the other occupants of the borders. Strong cuttings or suckers, or, what is better still, the old roots or stools that flowered in pots the previous season, planted at the foot of the wall 3 feet apart early in March, in soil similar to that just recommended, will make remarkably rapid growth, and, if kept neatly nailed in and all the side-shoots removed as they appear, will soon cover a wall of ordinary height. Should it be desirable to protect the blossoms from wind and weather, a canvas covering fastened in front when the nights are cold will generally prove sufficient protection. Those named below are suitable varieties. — *Doubles:* Bronze *Crawfordia;* Bronze Soleil d'Octobre; *Crawfordia,* golden; crimson Source d'Or; Kathleen Thompson, crimson-red; La Triomphante, pink; Lizzie Adcock, rich yellow; Sœur Melaine, white; Mrs Roots, white; Uxbridge Pink; Jules Lagravere, crimson; Eynsford, white; Elaine, white. *Singles:* Golden Mensa; Gracie Page, rose; Mabel Russell, crimson; Mensa, pure white; Molly Godfrey, pink; Mrs Loo Thompson, soft yellow; Mrs R. C. Pulling, pink; Tom Wren, white; T. Barnes, ruby-crimson. By sowing seeds in slight warmth in February, single-flowered varieties may be flowered the same year, a good strain yielding many useful varieties.

Early Flowering Sorts.—These are valuable alike for the border and for cutting, and afford a wealth of bloom of diversified colouring when it is much needed in the garden. Few plants respond more promptly than these to generous cultivation, and none are more worthy of it. The mistakes usually made are those of rooting the cuttings too early in the year and employing the gross sucker growth so prevalent in autumn for propagation. The first of these results is the young plants becoming hide-bound before the planting season arrives, and rarely developing afterwards, the suckers producing their own characteristic growth, which never flowers. February to April is early enough to root cuttings of these varieties, and given freshly-made shoots 2 or 3 inches in length, no difficulty is experienced. It is important, however, that the cuttings be potted or transplanted so soon as rooted, so that sturdy examples for putting out in May are the result. Those named flower from August to October:—Bronze Goacher; Cottage Pink; Crawford Pink; Crawford White; Crawford Yellow; Dorothy Humphrey, pink; Goacher's Crimson; Harry Thorpe, rich yellow; Horace Martin, golden yellow; Mme. C. Desgrange, maize to white; Mme. Marie Masse, lilac; G. Werning, soft yellow; Mrs J. Fielding, reddish; Carrie, yellow; Polly, orange-yellow; Crimson Polly; Mrs Ward, creamy-white; Nina Blick, red and bronze; October, gold; Elenore, rose-pink; Betty Spark, deep pink; Bronze Betty Spark; Crimson Marie Masse; Decorator, bronze; and Diadem, rich wine-red.

Pompons.—Anastasia, light purple; Blushing Bride, rose-lilac; Flora, golden; Golden Fleece, golden; L'Ami Conderchet, primrose; Little Bob, crimson; Mignon, Mr Selby, Mrs E. Stacey, yellow; Orange Pet.

C. latifolium is the largest of the Ox-eye Daisies, with fleshy, coarsely serrated, broad leaves. The seeds have large flower-heads, 3 to 4 inches across; a

strong growing species requiring plenty of room. Division and seeds. A number of varieties of this and the following species have been raised, which have value as border plants and for cutting.

Chrysanthemum Mme. Desgrange, grown in the open air.

C. MAXIMUM.—The leaves of *C. maximum* are bluntly serrated, stems more or less branched, each carrying a single white flower-head. This vigorous plant has broken into a number of varieties of recent

years, some with thread-like petals, others with larger and strap-shaped petals. Most of them are worth growing, but being very vigorous should not be planted near to delicate or fragile plants. *Daviesii*, King Edward VII., and Mrs C. Lothian Bell are some of the finest sorts. Maritime Alps.

C. ZAWADSKII, of tufted habit, bears numerous rose-tinted flowers all through the summer months.

C. SEGETUM (Corn Marigold).—A showy yellow native plant, as worthy of cultivation as many an exotic, and in certain cases worth growing for cutting. Treat as a hardy annual, preferring autumn sowing, though it may be sown in spring also.

CICHORIUM (*Chicory*).—A pretty native plant, from 2 to 5 feet high. *C. Intybus*, bearing in summer and autumn handsome blue flowers. It is worth introducing as a wild plant into localities where it is not common. It is a rampant grower, and will take care of itself even in arable crops, but it dislikes heavy and cold soils. The seed may be sown on rubbish heaps and in stony places, old quarries, and by roadsides.

CIMICIFUGA (*Bugbane*).—Plants of the Crowfoot order, nearly allied to the Baneberry. They are tall, handsome, herbaceous plants. *C. cordifolia* attains 3 to 4 feet high, giving erect feathery plumes of whitish flowers. It is a good border plant. *C. racemosa* (Black Snakeroot), 3 to 8 feet high, with feathery racemes of white blossoms 1 to 3 feet long, which, being slender, droop gracefully; but the plants generally are not of much garden value. They are of easy culture in rich soil, and may be used as groups in the wild garden. The flowers have an offensive odour. Division. N. America and Asia. *C. simplex*, from Japan, is one of the most elegant, the flowers pure white in erect spikes. September.

CINNAMOMUM CAMPHORA (*Camphor Laurel*).—That this beautiful sub-tropical evergreen tree is hardier than often supposed is proved by Mrs Dugmore, of Parkstone, Dorset, who writes as follows:—"The Camphor Tree flourishes here, and is now a fine shrub about 10 feet high and quite healthy, bearing handsome glossy leaves. It has never been artificially protected, though sheltered by adjacent shrubs, and it has been planted quite 12 or 14 years. The soil is peat with a sub-soil of gravel, the whole well trenched and manured." There is also a fine specimen at Leonards-lee, near Horsham, and probably others in the gardens of Devon and Cornwall.

CISTUS (*Rock Rose*).—The Rock Roses are amongst the most beautiful of flowering shrubs, but in our country it is only on the lightest and warmest soils and on walls that they may be trusted to survive our winters. Most of the species have been at one time or other in cultivation in this country, but their value is greatly lessened by the recurring severe winters, which kill unprotected plants of so many of the kinds. All the species are Old World plants, most of them being natives of South-Western Europe; some extend to North Africa and Asia Minor, and one to the Canary Islands. Many of them vary in colour, and hybridise freely. In spite of the fugacious character of the flowers, their bright colours and the profusion in which a succession is kept up for a considerable time give the Cistus a high place among garden shrubs. They prefer a dry sandy soil, and, although some grow freely enough in almost any garden soil, they are much more likely to suffer during winter in rich ground. The positions best for them are sunny banks on warm sandy soil, and something may be done by protection and frequently raising and propagating the plant. There are many natural hybrids, some confusion of names, and many more names than distinct plants. This, and the fact that these sun-loving bushes from the south are tender over a large area of our islands makes us limit the species named here to the more distinct and hardier kinds.

C. ALBIDUS (White Rock Rose).—The name of this is derived from the whitish tomentum which clothes the leaves and young shoots. It forms a compact bush 2 to 4 feet high; the rose-coloured flowers are about 2 inches across, and the style is longer than the tuft of yellow stamens. S. Europe.

C. ALYSSOIDES.—Compact and shrubby, not more than 6 inches in height. The foliage greyish-green, spangled with lovely yellow blooms each about ½ inch across, and having a tiny brown blotch at the base of each petal. The flowers are borne in little clusters of four or five at the extremities of the growths.

C. BOURGÆANUS is a native of the Pine woods of S. Spain and Portugal, where it flowers in the month of April, grows a foot in height, and has prostrate branches

covered with narrow dark green leaves. The white flowers are about an inch across, and it is a good plant for a sunny spot in the rock garden.

C. CRISPUS.—This forms a compact bush, 1 to 2 feet high, with tortuous branches, the rose-coloured flowers nearly 1 inch across. There are some hybrids between this species and *C. albidus* which are nearer the seed-bearing parent than they are to *C. albidus*.

C. CYPRIUS.—This is a handsome bush like the Gum Cistus, but the flowers appear several together instead of solitary. It is nearly hardy—at least, in the south—has a glutinous exudation, and the flowers are large with a dark spot at the base. It is said to be a native of Cyprus, but doubtfully.

C. FLORENTINUS (Florence Rock Rose).—A handsome bush, flowering freely and of easy culture, and I find it hardy and enduring on soils where other kinds perish. It is evergreen and charming on the tops of dry walls and banks, and for the bold rock garden one could not desire a prettier bush; 2 to 3 feet high, bearing myriads of white flowers throughout the summer.

C. GLAUCUS.—A much-branched bush, 1 to 2 feet in height, with red-brown bark; the upper surface of the leaves is dull green, glossy, and glabrous, the lower strongly veined and clothed with a hoary down. The flowers are large, white with a yellow blotch at the base of each petal, and the very short style is much exceeded by the stamens. S. Europe.

C. HIRSUTUS (Hairy Rock Rose).—A shrub 1 to 3 feet high; the young shoots and flower-stalks are hairy, as are the leaves on both surfaces; the flowers whitish, and the style is shorter than the stamens. S.W. Europe.

C. LADANIFERUS (Gum Cistus).—One of the best; the leaves, smooth and glossy above, clothed with a dense white wool beneath. The large flowers are white, in some forms with a large dark vinous-red blotch towards the base of each petal; in others without blotch. It also varies in the size of the leaves, the extreme forms having narrow, almost linear, leaves. This seeds and naturalises itself freely on dry banks in a wood of mine.

C. LAURIFOLIUS (Bush Rock Rose).—The hardiest kind; in some southern gardens plants exist, which have withstood many winters. The flowers are white with a small citron-yellow blotch at the base of each petal. It requires no protection, and may be raised from seeds, which ripen in abundance, and also by cuttings, which, however, do not strike so freely as in some of the other kinds. S.W. Europe.

C. LUSITANICUS.—A pretty kind of garden origin, which makes a shapely bush of spreading habit and slender wiry stems, covered during summer with large white flowers marked with a deep crimson spot at the base of each petal. Narrow, bright green foliage, which is slightly viscous.

C. MONSPELIENSIS (Montpelier Rock Rose).—Widely distributed in the Mediterranean region, and very variable in size of its leaves and also in stature of plant; in some spots it hardly grows more than 6 inches in height; in others to 6 feet. The flowers are white, about an inch in diameter, each petal bearing a yellow blotch at the base.

C. POPULIFOLIUS (Poplar-leaved Rock Rose) is a robust kind, with large rugose, stalked, Poplar-like leaves and medium-sized white flowers, tinged with yellow at the base of the petals. Varieties of *C. salvifolius* are often misnamed *C. populifolius* in nurseries and gardens. Amongst the numerous forms of this species may be mentioned *C. narbonnensis*, with shorter flower-stalks, smaller leaves—altogether a smaller plant than the type—and *C. latifolius*, another with broader leaves. S. Europe.

C. PURPUREUS—A very handsome shrub, hardy on high ground and of easy increase by cuttings. In Sussex gardens hardy for some years, but said to perish in low lands.

C. SALVIFOLIUS (Sage-leaved Rock Rose).—A variable kind, and of slender habit, with Sage-like leaves, and long-stalked, white, yellow-blotched flowers. In a wild state it is found all along the Mediterranean, and a number of slightly varying forms have received distinctive names, but do not appear to have been introduced to gardens.

C. VAGINATUS is the largest of the red-flowered kinds; robust, with large-stalked, hairy leaves, and large, deep, rose-coloured yellow-centred flowers. The stamens are more numerous in this than in, perhaps, any other Cistus, and form a dense, brush-like tuft, overtopped by the long style.

C. VILLOSUS.—A Mediterranean kind, a variable and erect bush with firm-textured leaves. The flowers of all the forms are rose-coloured, with long styles. *C. undulatus* is a variety with wavy-margined leaves. *C. incanus* represents what may be regarded as the common typical form. *C. creticus* is another with deeper rose-red flowers than those already mentioned.

CLADIUM.—*C. Mariscus* is a vigorous native fen plant, 2 to 6 feet high, in flower crowned with dense, close chestnut-coloured panicles, sometimes 3 feet in length, the leaves glaucous, rigid, and often 4 feet long. It is a water plant for association with the taller Sedges, Bulrush, and bolder water-side plants.

CLADRASTIS, the Yellow-wood of

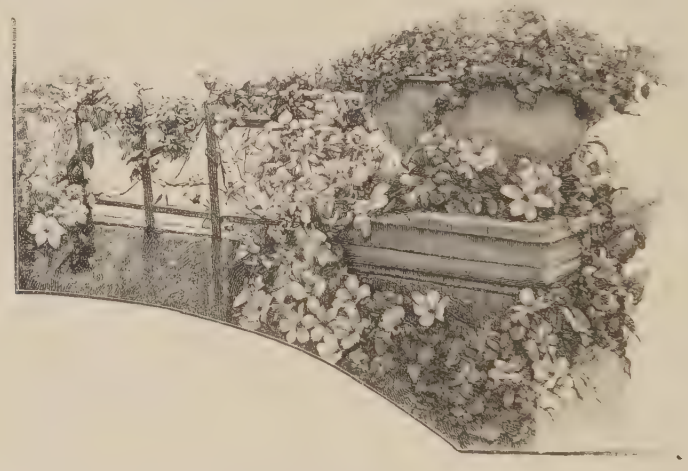
N. America. *C. tinctoria* is a pretty lawn tree of medium size and symmetrical growth, but not a good flowering tree. Its leaves, in autumn, turn to a rich yellow, and remain bright for weeks until cut off by frosts. The white pea-shaped flowers are borne in loose clusters. *C. amurensis* is a shrub introduced a few years ago from the Amoor Valley. Its leaves resemble those of the Yellow-wood, but are of thicker texture, not so large, and of a duller green. In late summer it produces a plentiful crop of flowers, even when only a few feet high. The spikes are dense, the blossoms white, inclined to yellow, and endure a long time. Small bushes flower freely. It is hardy in sandy loam.

CLARKIA. — These Californian plants of the Evening Primrose and Fuchsia order are among the prettiest of hardy annuals, robust, of easy culture, and flower for a long time. There are two species from which the numerous varieties now in cultivation have been obtained. *C. elegans* grows 2 feet high, erect, much branched, and bears long leafy racemes of flowers with undivided petals, varying from purple to pale red or a salmon colour. The principal varieties of this species have double flowers, and two—Purple King (deep purple) and Salmon Queen (salmon-pink)—have flowers produced freely on strong branching plants, and are very effective border flowers. The other species, *C. pulchella*, varies in

Cistus ladaniferus.

height from about 1 foot in the Tom Thumb sorts to 2 feet. It has magenta flowers normally, but there is every variation between deep purple and pure white, and there are also several double-flowered forms. Many varieties are mentioned in seed lists, some well worth growing.

Clarkia may be sown either in autumn or spring, and by sowing in the beginning of September the seedlings gain strength before the winter, and flower well in early spring, but these autumn sowings are liable to accident, and should only be tried on warm soils. The first spring sowing should take place in the middle of March, when the plants would flower in July.



Clematis over wall, Gravetye.

CLAYTONIA.—A small group of the Purslane order, of which three species are pretty garden plants. *C. caroliniana* is a spreading dwarf species bearing in spring loose racemes of pretty rose flowers, and *C. virginica* (Spring Beauty) is a slender erect plant, with pink blossoms. Both are suitable for warm spots in the rock garden in loamy soils, but *C. sibirica*, also a dwarf species with pink flowers, requires a damp peaty soil.

CLEMATIS (*Virgin's Bower*). — Beautiful climbing shrubs and herbs from northern and temperate regions, and of the highest value for gardens. Among hardy climbers there is no other group of plants that equals the Clematis in variety and in beauty.

The Clematis vary in habit from herbaceous plants little more than 1 foot high to woody climbers with stems 50 feet or more in length. Most of the climbing species support themselves by means of the leaf-stalks, which curl round twigs or other slender objects near. The Clematis flower possesses no true petals, but in their place a coloured calyx consisting of usually four, but sometimes as many as eight sepals.

The Clematises may be used to cover walls, mounds, arbours, pergolas, and fences, and in the open, where no other support is available, rough Oak branches may be used for them, either singly or set together to form a pyramid, while the more vigorous species will run over trees. The most graceful climbing plants of the northern world, for several generations most of them have been lost to our gardens owing to the mistaken mode of increase by grafting these beautiful Chinese and Japanese plants on the common vigorous kind that grows on the chalk-hills of Surrey. Death is inevitable, and few succeed, some struggling to establish themselves in spite of it. I have proved in my own garden for many years that the right and natural way of propagation is by layering, cuttings, or seedlings of good kinds. The French nurserymen use the *Viticella* for the stock, which is nearly as bad. The right way is to have nothing to do with grafting.

C. ALPINA (Alpine Clematis).—A very

pretty plant flowering in spring. The flowers are nodding, the four large sepals being soft blue with a whitish margin, or sometimes almost entirely white. The flower is 2 inches or more across. Syn. *Atragene*.

C. APHYLLA.—A leafless species forming masses of long, wiry, roundish, rush-like stems of a dark green colour, on which in axillary clusters the greenish-yellow, fragrant flowers occur in almost whorl-like formation. At first sight the plant does not greatly attract—that is to say, from the point of size or colour of its flowers—yet it is worth having for its exceedingly grateful perfume, which reminds one of the Winter Sweet.

C. ARMANDI.—An evergreen species, native of Central and Western China. At first glance this might almost be taken for the New Zealand Clematis *indivisa*, bearing as it does trifoliate leaves of a dark green, leathery texture. The flowers, borne freely in the axils of the leaves, are each 2 inches in diameter, and composed of six or eight segments, thus forming a starry bloom.

C. CAMPANIFLORA (Bell-flowered C.).—A graceful, small bell-shaped flower about 1 inch in diameter, pale violet or almost white. The flowers are very freely borne, and against the deep green, often finely-divided foliage, they are very effective, The plant is not often seen in gardens. though coming freely from seed.

C. CALYCINA (Winter-flowering C.).—A native of Minorca and Corsica, evergreen with dark brown-angled stems, and during the winter the foliage acquires a fine bronzy hue. The flower is about 2 inches across, yellowish-white, stained inside with oblong, irregular, reddish-purple spots. December to April. In the London district it ought to have the shelter of a wall to flower well. From its near ally, the following species, it differs in its narrower and more divided foliage.

C. CIRRHOSA (Evergreen C.).—This evergreen species has been much confused with *C. calycina*. *C. cirrhosa*, however, if it comes from the Balearic Islands, is not confined to them, but is a native also of various parts of Spain, and is found also in Algiers and on the mountains of N. Africa. The flowers are dull white or cream-coloured, downy outside, smooth within, and about 1½ inches in diameter. In S. Europe it climbs over big trees, but it grows only some 8 or 10 feet high in these colder latitudes.

C. COCCINEA (Scarlet C.).—A distinct species, some 6 to 10 feet high, the flowers varying in colour from rosy carmine to scarlet; they are swollen at the base, but narrow towards the top. A larger-flowered variety is known as major, and various hybrids have been raised by crossing this and other species. N. America.

C. CRISPA (Frilled C.).—A distinct and good kind. The colour is purple margined with white, or in some forms pale lilac. The flowers are fragrant and appear in June, continuing up to autumn. Some of the forms are bright in colour and pretty, but others are amongst the least effective of the shrubby Clematis, the thick, heavy sepals being of a dull purple. N. America.

C. FLAMMULA (Fragrant Virgin's Bower).—A vigorous grower, its leaves are of a rich dark green and remain fresh till well into the winter. The flowers are small (half-inch to three-quarters of an inch across), and appear in late summer and autumn; fragrant, creamy-white, the fruit white and feathery. This species is variable in the size and shape of the leaflets and in the flower panicles, some of which are large with numerous blossoms, whilst in other forms the panicles are few-flowered and scarcely branched.

C. FLORIDA (var. *bicolor*).—The type *C. florida* is a native of China and has been long known in European gardens. It is allied to *C. patens*, and, like that species, produces its flowers earlier than the *lanuginosa* varieties, for the blossoms appear from ripened wood of the previous year, and are usually at their best in June. As a rule, the flowers are whitish with dark stamens in the forms that closely resemble the type, but in the variety *bicolor* the flowers are doubled, the outer part being white and the inner part purple.

C. GRATA (Indian Virgin's Bower).—A free, much-branched Indian climber, growing from 12 to 15 feet high, with hairy stems and leaves, flowering freely with me on pergola or over bushes. It is a very good kind, flowering late when few climbers are in bloom.

C. HERACLEÆFOLIA (David's Virgin's Bower).—A dwarf, sturdy plant under 2 feet high, with large leaves and short-stalked corymbs of flowers of a hyacinthine shape and purplish-blue colour. Much superior to it as a garden plant is the variety *Davidiana*, which often ranks as a species. Its stems are about 4 feet long, but are rarely strong enough to stand erect without support. The largest leaflets often measure 6 inches in length by nearly as much in width. The bright lavender-blue flowers are in dense heads, borne on long stalks in early autumn. N. China.

C. LANUGINOSA (Great-flowered Virgin's Bower).—A noble Chinese species 5 or 6 feet high, the leaves covered beneath with greyish wool, the flowers the largest of any of the wild kinds, 6 inches across, and the sepals flat and overlapping and of a pale lavender colour. It is to this species more than to any other that the beauty of

the garden hybrids of Clematis is due. Its flowers range in colour from pure white to deep rich purple, and appear from July to October.

C. MONTANA (White Virgin's Bower).—One of the most beautiful kinds, and when covered with its white flowers during May, one of the most attractive of all hardy climbers. It is quite hardy and vigorous, and may frequently be seen covering walls

Clematis lanuginosa alba growing through Azara.

to a great height; also will run up trees and prove very effective in that way, thriving in ordinary soil and increased by seed or layers. *C. lilacina* is a hybrid of *C. montana* and something else. It is very delicate in colour, and very hardy. I plant it at the foot of trees, a favourite way of mine of growing Clematises.

C. NUTANS (The Nodding Virgin's Bower).—We have this in several positions, and it seems to grow well in all. It is a Chinese kind, fragrant, of good growth, and a real addition. Some of the smaller kinds of Clematis are scarcely worth cultivation; but this may well be, it carries the blooming season so much further on in the year.

C. ORIENTALIS (Yellow Indian Virgin's Bower).—A vigorous climber growing 12 to 30 feet high, flowering abundantly in August and September, the four sepals being of a yellow colour, tinged with green, and having a sweet but not very strong fragrance. The fruit heads are handsome with the silky tail attached to each seed vessel. Mountains of India and N. Asia.

C. PANICULATA (Japanese Virgin's Bower).—A vigorous climber, growing to a height of 30 feet or more. The flowers have a hawthorn-like fragrance, the four sepals being of a rather dull white. It is hardy in Britain, and flowers during September, but with nothing like the profusion that makes it so beautiful a climber in America.

C. PATENS.—The sepals are from six to eight in number, narrow in the form originally introduced, and a delicate mauve colour, but the varieties subsequently obtained from it under cultivation have flowers much larger, the colours varying from white to deep violet and blue. Its value as one of the parent species of the garden Clematis is due not only to its beauty, but more especially to its flowering as early as May and June.

C. RUBENS (The Rosy Virgin's Bower) is a recent and very pretty form from China, usually classed as a variety of *C. montana*, but I think distinct, finer in habit, and less rampant. A friend who grows it in N. Germany tells me it is hardier there than *montana*. It is excellent for various garlands over walls, light arches, and over low trees and shrubs. It is of easy culture in ordinary soil.

C. TANGUTICA (The Russian Virgin's Bower).—A noble kind of recent coming, often wrongly described as a variety of *C. orientalis*. It is a distinct and finer plant. The error has been fostered by botanists, who do not often see the plants alive, and "argue" from the dried plants. It grows freely here in our ordinary soil, deep and moist, but no trellis is large enough for it. The large, deep yellow flowers are followed by handsome seed heads.

C. VIRGINIANA (American Virgin's Bower).—The common Virgin's Bower of the United States and Canada. The flowers are borne in flat panicles, the sepals thin and dull white, and although hardy enough, is not in Britain so strong and woody a grower as our native Traveller's Joy.

C. VITALBA (Traveller's Joy).—There is no climber native to Britain that gives so near an approach to tropical luxuriance of vegetation as this. The numerous dull white flowers are each three-quarters of an inch or so across, with a faint odour resembling that of Almonds. It is, perhaps, most beautiful when covered with

its white fruits, the seeds having long feathery tails.

C. VITICELLA (Purple Virgin's Bower).—A graceful climber, from 8 to 12 feet high; its flowers in summer 1½ to 2 inches in diameter, the sepals blue, purple, or rosy-purple, and the fruits have only short tails, which are devoid of the plumose covering so often seen in this genus. There

Clematis Lady Caroline Neville.

are now numerous varieties of the species superior to it in size of flower, and offering also a variety of shades, some very pretty.

CLERODENDRON. — Tropical or sub-tropical trees or shrubs, only two species of which have any claim to hardiness, *C. trichotomum*, a Japanese plant, and *C. fœtidum*, a native of China, an old garden plant usually seen in greenhouses, but hardy enough for open-air culture in all southern and warm parts.

CLETHRA (*Sweet Pepper Bush*).—Shrubs and small trees of the Heath order, the hardy species natives of North America. The Alder-leaved Clethra (*C. alnifolia*) in the wet copses of Virginia reaches a height of 10 feet or more. With us it grows from 3 to 5 feet, makes a dense bush, bearing in summer white, sweet-scented flowers in feathery spikes. *C. acuminata* has more pointed leaves, and it also has spikes of white scented flowers; it is quite a small tree in the woods of the Alleghanies. Both are valuable shrubs for moist peaty places.

C. ARBOREA is the handsome Lily-of-the-Valley tree. It bears panicles of white, bell-shaped flowers in the summer, at which time it is quite a feature at Tresco. It thrives out of doors in the south, and may be worth trying in the warmer parts of S. Ireland, but usually in our country is a shrub for the greenhouse. Madeira.

C. CANESCENS.—An erect deciduous bush, 4 feet or so high, native of China and Japan, whence it was introduced about 1870. The leaves are greyish, the white, fragrant flowers borne in terminal inflorescences in August. It is somewhat tender when young, but stands better after the first few years.

C. TOMENTOSA.—Closely allied to *C. alnifolia*, and from the same region. The flowers, in large terminal and axillary panicles, are white and fragrant, and at their best in September.

CLIANTHUS (*Glory Pea*).—Brilliant shrubs seldom seen out of doors in the London district or home counties, but one kind is quite free as a wall plant in Irish and west country gardens, and should be more frequently planted in seashore and warm places. It is *C. puniceus*, a native of New Zealand, and as handsome a shrub when in bloom as one could wish to see, its splendid crimson blooms borne in large bunches during summer. Cuttings.

CODONOPSIS. — The members of this small genus of the Bellflower order are remarkable rather for a quaint, distinctive beauty of their own, not half of which is disclosed externally. Of drooping, bell-shaped outline, the flowers contain their greater beauty within the corolla, and which, moreover, is not all seen at a glance. The plants may be raised from seeds and from cuttings. The following are the more important:—

C. BULLEYI.—A trailing species found by Mr Forrest when plant-hunting in China. The soft, lavender-blue flowers are drooping, distinctly contracted about

the middle, and openly bell-shaped at the mouth. A pretty free-flowering novelty.

C. CLEMATIDEA.—A climbing or twining species of 2 or 3 feet high; flowers creamy-white spotted with purple and tinged with blue.

C. MELEAGRIS.—As shown, well-flowered examples were nearly a foot high, the roundly, bell-shaped, drooping flowers of rare beauty. The ground colour is a very pale porcelain-blue, the heavy markings, so striking a feature of the species, rich chocolate to purple, the base or centre of the flowers internally green.

C. OVATA.—The flowers, two or more on a stem, are drooping, bell-shaped, pale greyish-blue in colour, with purple reticulations and orange and white base internally. The greater beauty is within the nodding bells. The plant is 18 inches or 2 feet high, with small, ovate, soft, greyish and somewhat downy leaves and flowers from June onwards. W. Himalayas.—E. H. J.

COLCHICUM (*Meadow Saffron*).—Hardy bulbs, some handsome in autumn. The individual flowers do not, as a rule, last long, but, as they come in succession, there is a long season of bloom. The flowers are often destroyed through being grown in bare beds of soil, where the splashing of the soil in heavy rains impairs their beauty. In the rock garden among

Colchicum in Grass.

dwarf plants Colchicums thrive, and make a pretty show in autumn, when rock gardens are often flowerless. They look better in grassy places or in the wild garden than in beds or borders. Their naked flowers want the relief and grace of grass and foliage.

C. AUTUMNALE, commonly called the autumn Crocus. The flowers appear before the leaves, rosy-purple, in clusters of about six, 2 or 3 inches above the surface, flowering from September to November. There are several varieties, the chief being the double purple, white and striped; rose-lilac; rose-lilac, striped with white, pale rose; and pure white.

C. PARKINSONI.—A distinct plant, readily distinguished from any of the foregoing by the peculiar chequered markings of its violet-purple flowers. Its flowers come in autumn, and its leaves in spring. Similar kinds are *Bivonæ*, *variegatum*, *agrippinum*, *chionense*, *tessellatum*, all of which have the flowers chequered with dark purple on a white ground.

C. SPECIOSUM, from the Caucasus, is large and beautiful, and valuable for the garden in autumn, where its large rosy-purple flowers appear nearly 1 foot above the ground. *C. s. rubrum* is a very handsome variety, the pure white *C. s. album* being unique. These *speciosum* varieties make excellent groups in grass and on the fringes of woodland places. Like the rest of the Meadow Saffrons, they are as well suited for the rock garden as the border, thriving in free soil.

COLLETIA.—Curious shrubs of the Buckthorn order from Chili, some species of which are hardy enough for the open air in all but the coldest parts of the country, in free sandy soils. They have spiny branches with a few minute leaves. *C. cruciata* is the commonest; its stems are armed with stout flattened spines, its flowers white and small, making a bush about 4 feet high. *C. spinosa* has its spines round or awl-shaped, the white flowers, though small, are very numerous in summer. Under favourable conditions it makes a formidable hedge in the southern counties, where it flourishes. Colletia are often neglected and placed against walls, but it will be found that the hardiest one is much better in the open sun, and best, perhaps, in sandy or stony ground, in which it is very effective in autumn.

COLLINSIA.—Annual flowers mainly of N.W. America. Some of real value for gardens, and often enduring our winters, so admitting of autumn sowing, which gives a better bloom, and frequently also sown in spring.

C. BICOLOR (Chinese Houses).—A beautiful and free-growing annual of very good effect in the spring. Often sows itself in free soil, and sown in September in any spare bed blooms finely in May.

C. GRANDIFLORA (Chintz Flower). — A quite distinct kind, it gives a very pretty purplish effect, and endures our winters well, thriving from autumn-sown seeds, and often coming self-sown.

Collétia cruciata (*C. bictoniensis*).

C. VERNA (Vernal C.). — A beautiful kind, native of the colder parts of N. America. Not much in cultivation with us. In my own garden we repeatedly failed to raise it, but still hope on and blame the seeds.

C. INSIGNIS (Baby Blue Eyes). — A beautiful flower easily grown, usually sown in the spring or, often better, in warm and southern districts in September, if good seed can be had then. To make sure of early sowing, it is well to save some of the seeds, as the stocks may not be ready. Sow on Rose or other open beds.

C. MACULATA.—A spotted kind, distinct and beautiful. Grown easily from autumn-sown seeds, and also seed sown in the spring. It is excellent for carpeting beds and for edgings. Seeds of all kinds are easily raised.

COLLOMIA.—*C. coccinea* is a bright-coloured annual, 1 foot to 18 inches high, flowering in summer and autumn. Sow it in April in open ground; or else in a frame in autumn, and protect it during winter, if good plants are desired, either for pots or planting out. On warm soils it grows best and sows itself every year, surviving the winter, and growing much stronger.

COLUTEA (*Bladder Senna*).—These cannot be called choice flowering shrubs, but they are very useful for poor hungry soils, particularly for dry sunny banks, where few other plants can exist; they are excellent, too, in smoky districts. Like the Gorse and a few other shrubs of the Pea family, they delight in a dry, sandy soil, and when in flower, which is during several weeks in late summer and in autumn, they are pretty, their foliage being light and elegant. They have numerous names, but there are only one or two distinct kinds. The commonest is *C. arborescens*, which, under favourable conditions, grows 6 or 8 feet high, has large flowers, varying in different varieties from yellow to a deep reddish-yellow. *C. cruenta*, *C. halepica*, and *C. media*—all natives of Europe—are smaller, and have bright yellow flowers; but all have much the same aspect.

COMMELINA (*Blue Spiderwort*).—A charming old garden plant with flowers of a fine blue. *C. Cœlestis* delights in light warm soils. The roots are fleshy, and in some districts it is well to cover them with coal ashes on the approach of winter. In cold, wet districts the roots may be lifted and stored in dry leaf-mould. On some warm or stony soils, and in districts near the sea where light soil prevails, it grows like a weed. It is so fine in colour that a group or small bed is always welcome. There is a white form. Mexico.

CONANDRON. — *C. ramondioides* is a small Japanese plant allied to *Ramondia*, having thick wrinkled leaves, in flat tufts, from which arise erect flower-stems some 6 inches high, bearing numerous lilac-purple and white blossoms. It requires a sheltered position, such as is afforded by a snug nook in the rock garden. Plants placed between blocks of stone thrive if there is a good depth of soil in the chink and the soil is moist.

CONVALLARIA MAJALIS (*Lily-of-the-Valley*). — This beautiful wood flower, native both in France and England, is not very common, so well worth naturalising in copse or wood where not naturally wild. It thrives best and looks best by shaded wood paths.

The best time to plant is early in autumn, immediately after the foliage decays, selecting plump single crowns and dividing them. For beds likely to remain undisturbed for several years, the crowns should be planted 6 inches apart. The finest form is called Fortin's, which is more robust than

the common kind, having larger flowers.

CONVOLVULUS (*Bindweed*).—Handsome climbing herbs; some hardy, and, where properly used, effective.

C. ALTHÆIODES.—A graceful trailer with numerous rosy flowers, hardy and free among rocks. Seeds or division of root. Mediterranean region.

C. CNEORUM. — A silvery-leaved shrubby species of high ornament and beauty, growing 3 to 5 feet high. In favoured localities it is excellent for sunny positions on rock work; otherwise it should be planted near a wall. Cuttings root readily. S. Europe.

C. DAHURICUS (Dahurian C.).—A showy, twining perennial, bearing in summer rosy-purple flowers. Excellent for covering bowers, railings, stumps, cottages, etc., and also for naturalisation in hedgerows and copses. It grows in almost any soil, and is readily increased by division of the roots. Syn. *Calystegia*. Caucasus.

C. MAURITANICUS (Blue Rock Bindweed).—A beautiful, prostrate, twining plant from N. Africa, with slender stems. The flowers blue, 1 inch across, with a white throat and yellow anthers. The rock garden and raised borders; supposed to require sunny positions, in sandy, well-drained soil, but I find it fine on stiffish cool soils. Seeds or cuttings.

C. PUBESCENS FL.-PL. (Double Bindweed).—Handsome and useful for clothing trellises, stumps, porches, and rustic-work. It grows rapidly to the height of 6 feet. The flowers are large, double, and of a pale rose, appearing in June and onward. Division. China.

C. SOLDANELLA (Sea Bindweed).—A distinct trailing species with fleshy leaves; flowering in summer, pale red, and handsome in the rock garden, if planted so that its shoots droop over stones. Also suited for borders, in sandy soil. Division. Europe and Britain.

C. SYLVATICUS.—No plant forms more beautiful and delicate curtains of foliage and flowers than this, which grows vigorously in any soil. The wild garden is the place where it is most at home, and where its vigorous roots may ramble without doing injury to other plants. Among bushes or hedges, over railings, or on rough banks, it is charming, and takes care of itself. The rosy-pink form *incarnata* is supposed to be a native of N. America, but is naturalised in some parts of Ireland. Native of S. Europe and N. Africa.

C. TRICOLOR.—One of the most beautiful of hardy annuals. There are numerous varieties, varying more or less in colour of flowers or in habit of growth. The flowers of the type are blue, yellow, and white, and the plant being perfectly hardy, may be sown in the open ground in September for flowering in spring, or sown in February in a heated frame for transplanting in May for midsummer flowering, and in the open ground from April to the end of May for flowering in late summer and autumn. Syn. *C. minor*.

COPROSMA. — Dwarf evergreen shrubs from New Zealand, best seen in shore and southern gardens, and most at home on a bold rock garden. The Coprosmas are widely distributed in New Zealand, some of the Pacific Islands, Chili, and elsewhere. Of the forty or more known species a few only have been introduced to cultivation in this country, those few being chiefly natives of New Zealand. They are too tender for general outdoor planting in the British Isles, although they thrive in the milder parts, and very few are grown indoors except in botanic collections of plants. As evergreens they are most useful, for they have little flower beauty, the blooms being very small, and not bright enough to make them conspicuous. When fruit is borne freely it has attractions, but fruit cannot be depended upon in this country. Given suitable climatic conditions, they are not difficult to cultivate, for they thrive in well-drained, loamy soil, to which a little peat or leaf-mould has been added. Cuttings inserted in a close and warm frame during summer root with little trouble, and soon form good plants.

Of the various species the following are most easily obtained:—

C. ARBOREA.—A bush or small tree 20 to 30 feet high, with dark green or brownish-green leaves, each 1 to 3 inches long, and up to 1½ inches wide. It is the Tree Karamee of the Maori, and when grown in the open forms a wide, bushy head. When grown close together, however, tall, slender trunks with small heads are formed. The male and female flowers, borne by different plants, are in small, terminal heads, and are not showy. The berries are two-seeded and black when ripe. The wood is yellow, tough, and straight-grained, and is used for ornamental cabinet work.

C. BAUERI.—One of the best for outdoor planting in the South of England, it forms a handsome evergreen, with glossy, oval, or oblong leaves, which are thick in texture, 2 to 3 inches long, and up to 2½ inches wide. The flowers are of no consequence, but the orange-coloured fruits are said to be attractive when produced freely. In New Zealand and the Norfolk Islands

it grows from 12 to 25 feet high under favourable conditions, but when growing in exposed, rocky places it is often a prostrate shrub or low bush.

C. LUCIDA has much in common with *C. Baueri*. Both it and *C. Baueri* are recommended for planting near the sea, even where washed by spray, violent winds and dashing spray being said to brighten the glossy surface of the leaves. They are planted as hedges in New Zealand, and are said to withstand clipping very well. A third bold-leaved species is *C. robusta*, which may be included with *C. lucida* and *C. Baueri*.

C. PENDULA is worth growing on account of its fine branchlets and semi-pendulous habit. The small, brownish-green leaves are rounded, and often less than half an inch across. It grows into a bush at least 8 feet high.

COPTIS. — This belongs to the Ranunculus family, and consists of about half a dozen species of low-growing evergreen plants spread over the whole of the North Temperate Zone. Coptis is closely related to Anemone, Helleborus and Thalictrum. The name Coptis signifies "cut" in reference to the numerous divisions of the leaves. The species are mostly woodland plants, and all thrive in partly shaded situations. They flower very early in the year, and are useful subjects for the rock garden. Most of the species produce seeds, by means of which they can be increased. All grow well in light, rich, well-drained soils. The following three species are probably all in cultivation :—

C. OCCIDENTALIS.—This is one of the largest species. It grows more than a foot in height. The leaves are trifoliolate and the leaflets are about 3 inches across, deeply and unequally cut and lobed. The white flowers have six petals and are usually produced three together on each scape. N. America.

C. ORIENTALIS.—This species blooms in February, and makes a good plant for the alpine house with its bronzy leaves and scapes of white flowers. When in flower the plant is about 6 inches high; the flower scapes of this species, as well as those of all the others, develop considerably after flowering. Japan.

C. TRIFOLIA.—This, the most widely spread and commonest species of all the Coptis, is found in the mossy woods of Canada, Siberia, and N. Europe. It forms a dwarf-growing, creeping plant with trifoliolate leaves and pretty white flowers on single-flowered scapes 3 to 4 inches long. The roots are yellow, and together with the leaves are used for producing a yellow dye. From this fact it receives its common name of "Gold Thread." It is a suitable plant for the peaty bog, soon spreading and forming an evergreen carpet studded from April to July with flowers.

CORDYLINE (*Club Palm*). — Fine-leaved shrub plants common in greenhouses, but only in the mildest parts of England and Ireland can they be grown well in the open air. In the Isle of Wight, and from thence along the shores of Devonshire and Cornwall to the Scilly Isles, they succeed well, forming a fine feature even in cottage gardens, whilst in some larger gardens whole avenues are planted. But, in far less favoured places, it is often seen thriving for years in the open air, though it is not worth trying in cold, high, and inland places, especially on clay soils.

COREOPSIS (*Tickseed*). — Showy N. American herbs, perennial or annual; the annuals being pretty summer flowers, and the perennials valuable late-blooming plants. One of the best of the perennials is *C. auriculata*, about 2 feet high, with a spreading growth, and bearing in autumn abundance of rich yellow blossoms on slender stalks. Nearly allied and similar to it is *C. lanceolata*, an equally showy plant, also delighting in a rich, damp soil. *C. rosea* is a neat and pretty plant. *C. verticillata* (*tenuifolia*) is a pretty plant, with elegant feathery foliage and rich golden-yellow blossoms from summer till autumn. It is less robust than the taller kinds, and therefore requires a more select spot, such as the front rows of a mixed border or parts of the rock garden. The annuals are among the showiest summer flowers; being hardy, they make a fine display in spring from seeds sown in September; while an almost continuous bloom may be had from July to October by sowing successively from early March till the middle of June in ordinary garden soil—that of a moist description being preferable for the spring sowings.

C. GRANDIFLORA.—A very fine showy plant. It fully deserves its name, as its flowers are very much larger than those of any other *Coreopsis* grown in gardens. Even if we come to treat it entirely as an annual, this will not detract from its value, for it is a graceful flower and worthy of special care. Raising a batch of seedlings once a year is easily done. The seed may be sown at any time in spring, and strong

plants be ready to put out into their flowering quarters in autumn.

CORIARIA.—This group now contains two or three new and handsome kinds of value. The peculiarity of these shrubs is in the formation of their berry-like fruits. The flowers are small and inconspicuous, with scale-like petals of green, yellow, brown, or pink, and the sexes mostly apart, though found upon the same plant. After flowering, however, the tiny petals thicken and swell into a juicy fruit-like envelope surrounding the seeds, and handsome when brilliantly coloured, as in the finer kinds. While these fruits are of tempting appearance, they are all more or less poisonous—a fact to be borne in mind by planters. All the kinds are of the easiest culture in moist, loamy soils, the best kinds being hardy (at least, at the root), and growing again if cut down by frost. The following are in cultivation :—

C. JAPONICA.—A handsome shrub with red-brown woody stems 8 or 10 feet high. The leaves come in opposite pairs arranged regularly along either side of the stem, while the tiny flowers, of a pretty pink or coral-red, appear early in June as racemes of 1½ to 3 inches upon the stem of the previous year. The fruits are round and bright red.

C. NEPALENSIS.—A stout rambling shrub of nearly 20 feet, with woody stems bearing three-nerved leaves and axillary clusters of flowers and fruit, which distinguish it at once from *C. terminalis*, with which, however, it was long confused. The flowers are brown, appearing in May, and followed by black fruits. In the south-west of England and along the south coast, this plant succeeds in the open, but inland it makes little progress. In the variety *maxima*, the fruits are larger and of a bluish colour. Himalayas, China, and Japan.

C. RUSTIFOLIA is a tall shrubby climber of 10 to 20 feet, with square stems and slender arching shoots, covered with fresh green foliage and sprays of tiny green flowers drooping prettily from the leaf-axils. It is hardy even into Scotland, where it dies down like an herbaceous perennial. The flowers come in slender racemes of 6 to 12 inches, and towards autumn the tiny green petals swell into juicy fruits, of a rich purple colour in September and October, when this is one of the most striking of wall or border plants. New Zealand.

C. TORMINALIS.—A plant from the Tibetan frontier of China, and quite hardy in the south of Britain at least, making a shrubby root-stock and herbaceous stems of 2 or 3 feet, which die back each winter. The bark is rough and warty, and the shoots thickly set with pairs of rounded, dull green leaves. The brown and yellow flowers appear in long racemes from the tips of the shoots, differing in this from other kinds, in which they burst from the leaf-axils. These flowers give place to glossy, orange-yellow fruits of great beauty.

CORIS (*Montpelier C.*). — *C. monspeliensis* is a pretty dwarf plant of the Primrose order, about 6 inches high, usually biennial in our gardens, thriving on dry sunny parts of the rock garden, in sandy soil, and among dwarf plants. South of France. Seed.

CORNUS (*Dogweed : Cornel*).—Most of the Dogwoods known in cultivation are shrubs or small trees. Some are pretty shrubs, useful in the park and pleasure garden, or along watercourses, the shoots of some giving fine colour in winter; and there are two very dwarf species for the bog garden.

C. ALBA, the white-fruited Dogwood, is a native of Asia, growing to a height of from 5 to 10 feet, with slender branches clothed with bright-red bark, giving a charming effect all through the year, either in a mass or as a specimen plant on a lawn or in the shrubbery. The flowers, white or cream-coloured, are in crowded cymes, followed by white fruits.

C. BRETSCHNEIDERI.—Native of China, its bark has the familiar red colouring of several other species in the group, although it is less bright than that of *C. alba* and its varieties. It can be grown almost anywhere and in almost any deeply-worked soil. By inserting cuttings a foot long out of doors, in autumn or winter, it is easily increased. It is of vigorous habit, and requires plenty of room. Has to be severely pruned to keep it from smothering other subjects.

C. CANADENSIS (Bunchberry) is a pretty little plant with creeping underground rhizomes and upright stems from 4 to 8 inches high, the leaves in a whorl of four or six near the summit of the stems; the true flowers are minute, but the four rather large white or cream-coloured bracts conspicuous. The berries are red, and show well above the short stems : in taste they are sweet and palatable. Japan and N. America.

C. CAPITATA (Strawberry-tree).—This is more widely known under the name of *Benthamia fragifera*. It is a sub-evergreen tree, a native of N. India and China. In the gardens of Mr R. G. Lake, Trevarrick, St Austell, some trees are about 40 feet high, and the trunk is one of 5 feet in

diameter at 5 feet from the ground. There are numbers of fine specimens at Trelissick and in Devon and Cornwall. The large bracts, white tinged with pink or rose, make this one of the most beautiful trees when in flower, the large clear red fleshy fruits somewhat resembling a Strawberry.

C. CIRCINATA.—This is conspicuous by reason of its large round leaves, which are 4 or 5 inches long and 3 inches or more wide, and its clusters of bright blue fruits, each being about the size of a Pea. It is 3 feet or more—rarely reaching 10 feet—in height, and has rather rigid erect stems covered with warted bark, which is at first pale green, and later becomes light brown or purple. N. America.

C. FLORIDA (Flowering Dogwood) is very showy in flower, scarcely less so in fruit, and beautiful in autumn, when the leaves change colour before falling. Unfortunately, we do not obtain sufficient summer heat to thoroughly ripen the wood, and so the flowering of this species in Britain is not common, although it was one of the earliest amongst N. American shrubs to find its way to British gardens.

C. KOUSA is a native of Japan, quite hardy, but needs to be well established and several years old before it shows to advantage. The white flowers appear in May and June.

C. MAS (Cornelian Cherry).—Although the flowers of this are small, they are borne so freely by old trees that the clusters of yellow flowers are conspicuous on the leafless twigs. Old trees fruit freely, and bear fruit half an inch long or more, bright red and individually as handsome as a Cherry. On the Continent in many places selected varieties are grown for the sake of the fruit, for preserving. Amongst the forms are some with yellow, bright blood-red, and violet fruits, and another with fruit much larger than that of the wild

Cornus florida rubra.

plant. The Cornelian Cherry is a native of C. and S. Europe, and sometimes attains 20 feet in height.

C. NUTTALLI.—A tree, in its native country, 50 or 60 feet high. Generally it has six large, broad white bracts 2 or 3 inches long, so that the so-called flower measures 4 or 6 inches across. It is one of the most beautiful trees in the forests in many parts of California and Oregon.

C. PAUCINERVIS.—One of the most compact growing of the Dogwoods, and a pretty flowering shrub. It forms a dense-growing bush. The flowers are borne in flattish clusters.

C. STOLONIFERA (Red Osier Dogwood).—It spreads and multiplies freely by prostrate or subterranean shoots, and grows 6 or 8 feet high; the leaves light green above and paler beneath; fruit varying from white to lead colour. In winter the growths, especially those of the previous season, are a bright red-purple colour. In its native habitats it grows in wet places, but in Britain thrives in our ordinary soil. N. America.

C. SUECICA is a native of N. and Arctic Europe, Asia, and America, in Britain occurring on high moorlands from Yorkshire northwards, and ascends to 3000 feet. It is a charming little plant, flowering in July and August, with rather large white bracts, followed by red drupes. It should be grown in light soil or in peat in partial shade in the bog garden.

COROKIA.—Two pretty evergreen shrubs from New Zealand, allied to the Dogwoods, and hardy only in the warmer parts of Britain. Plants more unlike are seldom found so nearly related. Increase by cuttings or by layers in the autumn.

C. BUDDLEOIDES is from the New Zealand coast-belt, with glossy leaves forming a handsome shrub 10 feet high and through, with lance-shaped dark green leaves, silvery on the under side, from a downy covering which extends to the stems and branches. Starry yellow flowers with an orange centre appear in loose spike-like clusters during May and June, followed by oval yellow berries. It likes a half-shaded position in good loam, growing fast and fruiting freely.

C. COTONEASTER.—Coming from the mountains, this kind is hardier, and easily grown in southern gardens. The tiny leaves are bright green while young, becoming dark, and finally orange-red before falling. The plant grows well in a north aspect and in partial shade, but will also bear the sun in sheltered spots on the lawn or in the rock garden, where its tendency is to spread.

CORONILLA.—Flowering shrubs of the Pea family.

C. EMERUS (Scorpion Senna).—An elegant loose bush, 3 to 6 feet high, in mild seasons, remaining green through the winter. The flowers are reddish when first expanded, becoming yellow. It blooms freely in early summer, and flowers again in autumn. This is the only bushy Coronilla that can be well grown in the open air in our country, but in mild districts *C. glauca*, a beautiful shrub with glaucous foliage and yellow flowers, usually grown in greenhouses, may be grown out of doors. S. Europe.

C. CAPPADOCICA (IBERICA) is a vigorous trailer well suited to the larger rock garden. In early summer, with its bright yellow blossoms, resting on deep glaucous blue foliage, it is very effective. Cuttings, division and seed. Asia Minor.

C. MINIMA is similar to *C. iberica*, but smaller; a pretty rock plant. It is not frequent, though quite good.

C. VARIA.—A handsome plant, with rose-coloured flowers; found in stony places and on many railway banks in France and N. Italy, forming low, dense tufts, sheeted with rosy-pink, their beauty conspicuous among the weeds. Seeds.

CORYDALIS (*Fumitory*).—A numerous family, of the Poppy order, not many important for the garden.

C. BRACTEATA (Bracted Fumitory).—A distinct kind, with yellow flowers. More erect than some other kinds, the flowers cluster together at intervals. The plant is of quite easy culture. Siberia.

C. BULBOSA (Bulbous Fumitory).—A compact tuberous-rooted kind, 4 inches to 6 or 7 inches high, with dull purplish flowers in April, and a solid bulbous root, quite hardy, and of easy culture in almost any soil. A pretty little plant for borders, for naturalising in open spots in woods, and also for the spring garden. It is naturalised in several parts of England, but its home is in the warmer parts of Europe.

C. CAVA.—One of the dwarfest race, flowering early in the year, with purplish blossoms. A prettier kind is the variety *albiflora*, which is similar, save the colour of the flowers.

C. LEDEBOURIANA (Ledebour's Fumitory).—Distinct on account of its peculiar glaucous leaves, arranged in a whorl about half-way up the stem, 9 to 12 inches high. Flowers are a deep vinous purple, with pinkish spurs. It is early and hardy. Siberia.

C. LUTEA (Yellow Fumitory).—Graceful masses of delicate pale green leaves dotted with spurred yellow flowers. It is pretty in borders, and grows to perfection on walls, and the tufts, when emerging from some chink in a fortress wall where rain never falls upon them, are often as full of flower as when planted in fertile soil. A naturalised plant in England. Seeds.

C. NOBILIS (Noble Fumitory).—A distinct and handsome plant, 10 inches or 1 foot high; the flower-stems are stout and leafy to the top, and in summer bear a head of rich golden-yellow flowers with a small reddish point in the centre of each. It is easy of culture in warm borders, but is rather slow of increase. Division. Siberia.

C. SEMENOVII.—A pretty kind from Turkestan. The yellow flowers cluster together in the upper part of the stem and assume a somewhat pendent position. The spur in this kind is very short. It flowers usually in early spring.

C. THALICTRIFOLIA.—A charming addition to rock garden plants. One foot high, tufted, and spreading, the thin, wiry stems each carry two pairs of leaves on pedicels an inch long, and a terminal leaflet, all deeply notched. The blossoms are yellow, each about an inch long. It flowers profusely from May to October. China.

CORYLOPSIS.—A small group of hardy shrubs, allied to the Witch Hazel from China, Japan, and N. India. They are thin and dwarf, have ribbed leaves resembling the Hazel, and bear flowers in drooping racemes. As these are early spring-flowering shrubs, they should be planted in spots sheltered from cold winds.

C. MULTIFLORA resembles somewhat closely the *C. Veitchiana;* the racemes are rather longer. There are, however, certain botanical differences connected with the arrangement and hairiness of the leaves which separate the two species.

C. PAUCIFLORA, another Japanese species, is a very beautiful shrub when well grown, for its long, slender branches are clothed with rather thin, heart-shaped leaves. The upper surface of the leaves is green, the under side glaucous, but there is usually, when young, a well-defined margin of red or brown. The fragrant flowers, which have primrose-coloured petals and red anthers, come in April.

C. SINENSIS and C. PLATYPETALA are also in cultivation, and are well worth growing, as all the known kinds are.

C. SPICATA, the commonest kind, is a native of Japan, and was introduced about 1864. Mature bushes are 3 feet or so high and rather more through. During March and early April the primrose-coloured flowers appear in drooping catkins each 2 to 3 inches in length. In the absence of frost they are showy for a period of several weeks, whilst their fragrance is very noticeable.

C. VEITCHIANA is one of six species which occur in E. and C. China. It forms a shrub 5 to 6 feet high, with long and rather slender branches. When young the leaves are margined with red and brown. Ten to fifteen primrose-coloured flowers are borne together in dense racemes.

C. WILSONI.—This is distinguished from other kinds from C. China by having one or more leaves developed on the flowering branches at the time the leaves expand, whereas in most cases no leaves are developed until after the flowers have faded. The flowers have the usual primrose colour and fragrance.

CORYLUS (*Hazel-nut*). — A small group of European and Asiatic trees, represented in our country by the Hazel, *C. avellana*, which is precious in its nut-bearing forms for our gardens. There are varieties, including a weeping one, *pendula*, and cut-leaved and nettle-leaved forms. Other species worth growing are *C. americana*, *heterophylla*, *mandshurica*, and *maxima*, with its very fine variety *atropurpurea*, and other forms, among them the varieties of cobs and filbert nuts grown for their fruits. It is a very pleasant way to plant a group of the best fruiting Hazel in the pleasure ground, or to form what is called a Hazel walk.

COSMOS.—Mexican plants allied to the Dahlia. *C. bipinnatus* is a handsome annual, 3 feet to 5 feet high, having finely-divided, feathery foliage, and large Dahlia-like bright red-purple blossoms, with yellow centres. It is best raised a tender annual by sowing the seeds in February or March in a heated frame, and transplanting in May in good, rich soil with a warm exposure. It flowers from August to October, is good for grouping with bold and graceful annuals. There are now varieties rose, white, purple, and orange. *C. atropurpurea*, called the "Black Dahlia," is a handsome plant with nearly black flowers, thriving in ordinary soil.

COTONEASTER (*Rockspray*). —Trailing, or erect, shrubs of the highest garden value, with a great variety of habit—little things to crawl over walls or rock gardens, and also medium and most graceful shrubs like *horizontalis*, and brilliant fruiting trees like the Indian *C. frigida*, coming in among the ornamental trees. The cultivation is usually very simple, the plants thriving in any soil, and easy to increase by seed or division of the dwarf creeping kind. Hardy and close in growth, they are among the best shrubs for exposed situations. As

fence plants they have been advertised, but I found them of no use in that way.

C. ADPRESSA.—A new, and as yet rare, kind, forming a low, dense, spreading shrub. It is related to *C. buxifolia*, with flowers resembling those of *C. horizontalis*—*i.e.*, white, with the extremities of the petals rose. The fruit is a brilliant red, and ripens in August. It is likely to be a valuable shrub for the rock garden. China.

C. ANGUSTIFOLIA.—A new kind, 3 to 5 feet high, with spreading spiny stems, loaded with brilliant red berries, persistent throughout the winter. If this plant proves hardy in our winters, it will be of great value in gardens.

C. BULLATA.—A shrub reaching 3 to 4 feet in height, with a somewhat drooping habit, bearing berries of a dark blood-red colour. A distinct, new, and deciduous species, with blistered leaves (*bulle*); the flowers white and borne in corymbs; fruit brilliant and about the size of a Pea. Tibet.

C. BUXIFOLIA.—A free-growing bush that at times attains the height of 6 feet, forming a rather wide-spreading bush, the branches clothed with deep green box-like leaves; the crimson berries, nestling in profusion among the leaves, are pretty in autumn.

C. FRANCHETI. — An erect-growing handsome shrub, 4 to 5 feet in height, stems at first covered with white hairs, then brown. It flowers in June, white, marked with red on the outside of the petals; the berries, light orange in colour, appear in September, and last during a great part of the winter. Handsome in form and berry, and likely to be very useful in gardens. Yunnan.

C. FRIGIDA.—A low tree reaching 20 feet or more. During mild winters some of the leaves will be retained throughout the year, while if the weather is very sharp it will become quite bare, the showy fruits being of a bright crimson. If untouched by birds, the berries retain their beauty a long time; but if the weather be severe, they soon disappear. Mountains of India. It is useful for grouping here and there, its main value, however, being from the beauty of its richly-coloured fruits in autumn. Himalayas. Certain other allied Indian kinds, without being any better in effect than this, such as *C. affinis*, *C. baxilaria*, all free-growing, hardy, low trees.

C. HENRYANA.—A sparse-habited evergreen species, reaching 10 to 12 feet high. The finely-pointed leaves are roughish to the touch, dark green above, greyish beneath. Flowers white in June in corymbs. The brownish-crimson fruits are egg-shaped. Good plant for a wall. It is allied to *C. salicifolia*, and not infrequently referred to as a form of *C. rugosa*. C. China.

C. HORIZONTALIS (Plumed C.).—In this the branches are frond-like and almost horizontal, while the small leaves are regularly disposed along the thick, sturdy branches. A charm of this species is the manner in which the leaves die off in the autumn; frequently the leaves will be of a glowing red colour, with the exception of those on the tips of the shoots. The berries are very showy, bright vermilion, and the flowers pretty. China.

C. MICROPHYLLA (Wall C.).—An evergreen clothed with tiny deep green leaves, in spring crowded with whitish blossoms, the berries crimson, and, if untouched, remaining on the plants for a long time. There are some well-marked varieties of *C. microphylla*. It is useful for sloping banks or like positions, while it will cover a wall with such a dense mass that nothing else can be seen. Again, in the larger parts of the rock garden a place may be found for it; and its variety *congesta* is more at home when draping a large stone than in any other way. Himalayas.

C. PANNOSA.—A free and graceful kind, a native of Yunnan, white flower and a woolly calyx, and a red, pear-shaped fruit.

C. ROTUNDIFOLIA is like the preceding, but with thicker branches and rounder leaves. The berries are of a brighter tint. Both these species may, where a group of the larger Cotoneasters is planted, be used for the outskirts of the clump.

C. SIMONSII.—An erect, woody shrub of medium height, with long slender branches and shoots covered with stiff hair. The blossoms appear at the beginning of July, borne singly, or at most in umbels of twos or fives, white with red stains; the fruit, bright vermilion. I have found this a poor kind for effect, only useful as an undergrowth, and poor at that. It is much overplanted.

C. THYMIFOLIA (Thyme Rockspray).—A small shrub, bearing the smallest leaf of the family. The shoots, at first covered with soft hairs, soon become smooth and red-brown in colour. The flowers and berries are smaller than those of *microphylla*. Himalayas.

C. ZABELI.—A loose-habited bush of a sub-evergreen character, clothed with ovate, pointed leaves, each about a couple of inches in length. The berries, borne in great profusion, are of a brownish-crimson tint.

COTYLEDON.—As understood by botanists, this now includes the groups long known as *Echeveria* and *Umbilicus*. The first of these is still known so universally under the old name that we have no hesitation in keeping to it in this book, and we have therefore only to deal with the Pennyworts—little succulent plants similar to the Houseleeks and once grouped under

Umbilicus. They are planted as edgings or in dry places where few other things would live, and even thus the kinds are not all hardy. Four or five sorts are grown :—

C. chrysanthus, a little plant like a small Houseleek, about 4 inches high, with white or creamy-yellow flowers in short panicles. *C. sempervivum* grows rather taller, its dull green rosettes shaded with brown, and the pink flowers coming as large clusters in early autumn. This kind is most used for carpet-bedding, and the flowers are then carefully pinched out. Kurdistan. *C. spinosus* is a quaint little plant like a small *Apicra* or *Haworthia*, with a rosette of flat, spoon-shaped leaves, each tipped with a spine, and a spike of yellow flowers in early summer. It sometimes reaches a height of 12 inches or more, and is only hardy in dry and sunny places ; in a sharp winter and in cold places it is only safe under glass, and it needs careful protection from slugs at all times. Siberia, China, and Japan. Syn. *Sempervivum spinosum*. *S. sedoides* is a little plant with thick reddish leaves like a Sedum, from S. Europe. *C. simplicifolia* is an interesting, desirable, and free-growing subject for the rock garden ; flowers rich yellow in June and July, on arching and drooping Laburnum-like racemes. Seeds and cuttings. *C. Umbilicus* is a hardy British plant, with queer rounded leaves almost like a tiny mushroom, and greenish-yellow flowers in June. It grows on walls and rocky places near the south and west coasts, with stems of 6 to 18 inches, and leaves coming after the flowers are past.

CRAMBE.—One of the finest of hardy and large-leaved herbaceous plants, as easily grown as the common Seakale, and in rich ground having many stout leaves and dense sprays of small white flowers. *C. cordifolia* may be planted wherever a bold type of vegetation is desired. *C. juncea*, a dwarf kind, has white flowers and much-branched stems, the ramifications of which are elegant, but it is not so valuable as *C. cordifolia*.

CRATÆGO MESPILUS.—The name is a dreadful invention of some one with a callous mind, as if we had not enough of ugly names already. It is given to a supposed hybrid between the Hawthorn and the Medlar. These hybrids sometimes arise from grafting. We have so many beautiful and noble hardy trees that we can well dispense with grafted hybrids. One was known in old times as *Mespilus-Smithi*, and is rather common in old London gardens.

CRATÆGUS (*Thorns*).—Hardy flowering trees, of which some of the most beautiful kinds are seldom planted ; many are charming for their flowers, others for their fruits, while in a few the habit is picturesque. Perhaps the most beautiful of all is *C. Oxyacantha*, the Hawthorn or Whitethorn, and its varieties have every gradation of tint, from deep crimson, through pinks, to the snowy whiteness of the double sort. Paul's Double Scarlet, the double pink, double white, the single scarlet (*Punicea*), rose (*Carminata* or *Rosea*), and various others, are precious for the garden. Some varieties, like the graceful *Pendula*, are remarkable for their habit ; others have distinct foliage, and a few differ as regards fruit, there being white and yellow berried varieties.

Other species deserving of a place in gardens are many. A selection of the best includes the Cockspur Thorn (*C. Crusgalli*), from North America, usually about 10 feet high, is remarkable for peculiar growth, especially the variety *pyracanthifolia*. In this the branches spread out like a table, and the older the tree becomes the more pronounced the table-like growth. Other distinct sorts of the Cockspur Thorn are *nana*, *linearis*, *ovalifolia*, and *prunifolia*. The Scarlet-fruited Thorn, also N. American, is beautiful both when covered with white bloom in early summer or with scarlet fruits in autumn. The Tansy-leaved Thorn (*C. tanacetifolia*) is distinct in foliage, with cut leaves of a whitish hue, and it is one of the latest Thorns to flower. *C. Azarolus*, *Aronia*, and *orientalis* are all natives of the Levant, and they are so beautiful in autumn, with fine-coloured fruits as big as Hazel nuts, that they deserve a place. One specimen of any of these on a lawn would be sufficient in a small garden, as they are spreading, and in good soils 15 or 20 feet high. The Washington Thorn (*C. cordata*) flowers when all the others are past ; hence its value. *C. glandulosa*, also known as *C. flava*, has yellow fruits. *C. Douglasi* has dark purple haws, and *C. melanocarpa* and *C. nigra* have black haws. The Pyracantha (*C. Pyracantha*), so common as a wall climber, is a favourite because of its orange-scarlet berries and evergreen foliage. It is suitable for planting in the open, and some beautiful effects may be made by making its spreading and trailing growth serve as a margin

to groups of taller Thorns, or other small trees. The variety *Lælandi* fruits more freely than the common Pyracantha when planted as a bush, and another variety, *Pausiflora*, is dwarfer and closer in habit, and, in France, where these shrubs are much grown, is found to be the hardiest.

Until of late the Hawthorns of America were little known; many kinds have now been described, among which the following kinds are said to be of garden value. They are adapted to all kinds of ornamental planting, and seem to prefer heavy limestone soil, for they occur very sparingly in light or sandy soils. Planters have an idea that they are difficult to transplant, but if pruned back rather severely, quite large plants may be moved without loss, and in two or three years' time they will be objects of great beauty.

C. ANGUSTIFOLIA.—This is proving much more attractive as a wall shrub than appeared likely when it was first introduced a few years ago, fruiting very freely and growing luxuriantly. It is quite evergreen, like the common Pyracantha, but differs from it in its narrower downy leaves. The fruits become a brilliant orange, and on sunny winter days make a bright effect.

C. ARNOLDIANA, a tree 15 or 20 feet in height, with a broad irregular head. The flowers are borne as loose downy clusters towards the end of May. The bright crimson fruit, usually a little longer than broad, ripens about the middle of August, and soon falls. The tree is remarkable for the early ripening of its finely-coloured fruits in summer or early autumn.

C. BAXTERI.—A spreading shrub, with a broad head and 12 to 14 feet high. The flowers come about the first week in June, and the orange-red fruits ripen about the middle of October. The leaves are dull bluish-green, nearly oval in outline, and with a peculiarly concave surface, by which the tree is easily recognised.

C. BEATA.—A handsome shrub of 15 to 18 feet, bearing large saucer-shaped flowers, an inch or more across, with dark crimson anthers, coming into bloom during the last week in May. The oblong, crimson fruit, gathered in large drooping clusters, ripens at the end of September or early in October. The foliage is a deep blue-green, and the tree is exceedingly handsome when in flower.

C. COCCINOIDES.—Comes rather near *C. Durobrivensis*, but differs in its dark grey branches, smaller flowers, and the early dropping of its fruit. It is a handsome species, found from S. Illinois to E. Missouri.

C. DUNBARI.—Forms a dense round-topped shrub of 12 to 15 feet. The flowers, with rose-coloured anthers, gathered into long compound clusters, open about 20th May. The large drooping clusters of showy crimson fruit ripen towards the end of September. The leaves are very distinct in outline, oval or almost evenly rounded.

C. DUROBRIVENSIS.—A tall, upright shrub of 15 to 18 feet, with olive-grey stems. The large showy flowers, with rose-coloured anthers, open in the last week of May, and the glowing scarlet fruits ripen about the end of September and hang without loss of beauty all through the autumn and early winter, when their colour is very valuable.

C. ELLWANGERIANA.—A handsome tree 25 or more feet high, with a trunk a foot in diameter, and branching into a spreading head 25 to 30 feet across. The fragrant flowers, an inch across, with rosy anthers, come in large clusters about 20th May. The drooping crimson fruits ripen early in September, and fall towards the end of the month; when just matured their effect is very striking, but the birds soon find them out. The leaves are large, oval, and dark green.

C. FERENTARIA.—A tall, handsome shrub of 15 to 18 feet, with hairy clusters of flower, open towards the end of May. The small fruits of a glowing crimson hang in broad drooping clusters, fully coloured from about the middle of September. The leaves turn to a fine yellow in the autumn, and fall early.

C. FORMOSA.—A tall, branching shrub of 12 to 15 feet, with a spreading head. The large showy flowers come into bloom about the last week in May, and the glaucous fruits ripen in October. The foliage is of a distinct yellowish-green.

C. HOLMESIANA.—A tree 30 feet in height, with upright branches and a broad compact head. The cup-shaped flowers, with purple-red anthers, open about the middle of May. The bright crimson lustrous fruits ripen and fall early in September. The leaves are yellowish-green in colour, with prominent lobes and long sharp teeth.

C. LANEYI.—A tall shrub with slender, spreading branches, rare even in its own country. The large flowers on stems covered with shaggy hairs, come into bloom during the first week of June, and the orange-red fruits ripen in October.

C. PEDICILLATA.—Bears flowers with rose-coloured anthers, which expand about 24th May. The bright scarlet fruits ripen early in September and fall about the middle of the month. The leaves are broadly oval and rich dark green in colour. Prof. Sargent regards this as "one of the largest and most beautiful thorn-trees of the northern United States."

C. PRINGLEI.—Forms a dense oval head, branching from near the ground and reaching a height of 20 to 30 feet. The white flowers, with reddish anthers, open about the middle of May, and the dull-red fruits—occasionally marked with yellowish freckles—ripen about the end of August and fall about three weeks later. This Hawthorn is readily distinguished by its drooping leaves of convex form, this being due to the enfolding of the sides towards the mid-rib.

C. SPISSIFLORA.—A shrub or low tree in which the flowers, with ten stamens and purple-red anthers, are borne in dense

Cratægus Ellwangeriana.

short clusters, and come into beauty just after the middle of May. The bright scarlet, almost pear-shaped fruits are borne in dense clusters, which began to colour in August, but are not fully ripe till the middle of September. The foliage is ample, and the fruit remarkably handsome when ripe.

CREPIS (*Hawk's-beard*). — Of this genus of Compositæ, few save *B. rubra*, the Red Hawk's-beard, are worthy of culture. It is a hardy Italian annual, bearing pretty pink flowers about the size and form of the Dandelion, and should be sown in spring or autumn like other hardy annuals in any ordinary garden soil. It flowers from June to September, and is suitable for borders or beds of annual flowers. There is also a variety with white flowers. *C. aurea* is a perennial, 6 to 12 inches high, with small orange blossoms, but seldom more than one to each slender stem. *C. incisa* is a good species for borders, owing to its compact habit and large showy light purple flowers, as is also *indica*, a dwarf species, free-flowering and pretty. Division and seed.

CRINUM.—A few S. African species of these are hardy and worth growing. One of the best known is *C. capense*, 2 to 3 feet high, flowering late in summer, the large funnel-shaped pink blossoms in umbels of ten or fifteen blooms on a stout stem. There are several varieties—*album*, pure white; *riparium*, deep purple; *fortuitum*, white; and *striatum*, striped pink and white; and fine hybrids have also been raised—all good in borders or with groups of hardy plants that flower in early autumn; or for grouping near water.

C. CRASSIFOLIUM.—Grows well in sandy soils, such as in the Cambridge Botanic Garden. It flowers earlier than *C. capense*,

in June and July, with compact heads of flowers nine to twelve in number; many of them open at the same time. They are 3 inches long, white turning to deep rose, and very fragrant.

C. POWELLII.—The best of hardy Crinums, raised as a cross between *C. Mooreanum* and *C. capense*. It bears smaller flowers than *Mooreanum*, but is hardier, and with a little care in severe winters will grow well in almost any part of Britain. It makes a large club-shaped bulb 2 to 3 feet long, with spreading leaves many feet in length and massive spikes of fragrant flowers during August. Strong bulbs will give three spikes in one season, each spike bearing twelve to twenty pink flowers 6 inches across, with buds a deeper red, and opening in succession, so that the display lasts for some weeks. The bulb should be so deeply planted as to show only the upper part of the neck, the whole being surrounded with clean sand and the crowns covered up with leaves and bracken during winter. In cold places a spot at the foot of a south wall is best, and shelter for the leaves from cutting winds should be considered even where the extra warmth is unnecessary. There are two or three colour varieties—*album*, pure white and the best of all.

C. YEMENSE is also hardy in the south-west and other favoured parts of Britain, bearing large sweet-scented flowers of a beautiful satin-white colour. The true plant is rare. In flower beauty, however, surpassing all other white flowering kinds.

CROCUS.—Of a genus of nearly seventy species, it is surprising that only three or four are generally used for garden decoration, and these—*C. aureus* and *C. vernus* and their varieties, and perhaps one or two other species—have been in cultivation at least three hundred years. Crocuses flower at a time when every flower is of value, and we do not doubt that ere long species recently introduced will add largely to our means of garden decoration during the dull months from late autumn to early spring.

Cultural directions seem almost superfluous, but there are a few points to which it may be convenient to refer. The genus must be viewed as in succession, from the beginning of August till April; but of these only the earlier autumnal, or the distinctly vernal, species can be relied upon for open-air decoration. Although all are hardy, those that flower in November, December, and January are so liable to injury by frost and rain that they are practically worthless.

Crocuses are easily multiplied by seed, which should be sown in July as soon as ripe, though germination will not take place till the natural growing period of the species. Seedlings take from two to three years to arrive at maturity, and should be left for the first two years undisturbed in the seed-bed, and then taken up and replanted. Holland, with its rich, light, alluvial soil, and Lincolnshire, with its "Trent warp," have for many generations been the sources from which the English market has been supplied with the varieties of the three or four species grown in English gardens. The last five or six years have put us in possession of nearly the whole of the known species, and we must commend them to the Dutch and Lincolnshire bulb-growers.

Of the Crocuses recently introduced, many vernal species will probably be suitable for the spring garden, but as they are rare, we give those more generally known and easy to obtain.

C. ALTAVICUS.—The flowers of this new Asiatic species are white, yellow towards the throat, the outer surface of the outer segments being freckled with rich purple. It is a free-flowering species, but from its early-flowering time, January and February, it can only be grown to advantage under a cold frame. A white variety without external purple freckling is not uncommon. The leaves are produced at the flowering time in early spring.

C. AUREUS.—A handsome plant from the Banat, Transylvania, European Turkey, Greece, and W. Bithynia, generally at low elevations, flowering in February. It was one of the first introduced to cultivation, and is the parent of our yellow garden or Dutch yellow Crocus, and of a number of old varieties—*lacteus*, *sulphureus*, *pallidus*, *striatus*, etc., the history of which is unknown; they are not found wild, and are sterile. The wild plant varies considerably, from unstriped orange to varieties striped with grey lines, like those in the Dutch yellow Crocus.

C. BANATICUS.—Common in the Banat, Hungary, and Transylvania, where it takes the place of *C. vernus*, to which it is allied. The flowers are a rich deep purple, varied with white, with a darker purple blotch near the end of the segments. The throat is glabrous, which easily distinguishes it from *C. vernus*. Flowers in February and March.

C. BIFLORUS.—The Scottish, or Cloth of Silver, Crocus is a large variety of the typical form, and is abundant throughout a large portion of Italy. The segments vary from white to a pale lavender, the outer surface of the outer segments being

Crocus biflorus pusillus

Crocus etruscus

Crocus balansae

Crocus leucorhynchus

Crocus reticulatus

distinctly feathered with purple markings. In *var. estriatus*, from Florence, the flowers are a uniform pale lavender, orange towards the base. In *var. Weldeni*, from Trieste and Dalmatia, the outer segments are externally freckled with bright purple. In *C. nubigenus*, a very small variety from Asia Minor, the outer segments are suffused and freckled with brown; *C. Pestalozzæ* is an albino of this variety. In *C. Adami*, from the Caucasus, the segments are pale purple, either self-coloured or externally feathered with dark purple. *C. biflorus* is an early-flowering spring species, and is highly ornamental for border decoration.

C. BORYI.—Flowers white, but bright orange at the throat. Abundant at Corfu and in the neighbourhood of Patras, flowers in October, but it does not bloom freely in cultivation, and requires the protection of glass for the development of its flowers.

C. CHRYSANTHUS.—A vernal Crocus, flowering from January to March according to elevation, which varies from a little above the sea-level to a height of three or four thousand feet. The flowers are smaller than those of *C. aureus*, and are usually of bright orange, but occasionally bronzed and feathered externally. A white variety is also found in Bithynia and on Mount Olympus above Broussa; this species also varies with pale sulphur-coloured flowers, occasionally suffused with blue towards the end of the segments dying out towards the orange throat. There are four varieties of this Crocus, distinct in colouring; they are *fusco-tinctus*, *fusco-lineatus*, *albidus*, and *cœrulescens*.

C. IMPERATI.—One of the earliest vernal species, abundant south of Naples, and said to extend to Calabria. Lilac. Very variable in colour and markings. Two varieties occur near Ravelle—a self-coloured white and a clear rose. The outer surface of the outer segments is coated with rich buff, suffused with purple featherings. Its robust habit and early flowering make it one of the most valuable species for spring gardening. It flowers a fortnight and three weeks before *C. vernus*.

C. IRIDIFLORUS.—The Banat and Transylvania. Bears in September and October bright purple flowers before the leaves. Remarkable for purple stigmata and the marked difference between the size of the inner and the outer segments of the perianth. This beautiful plant should be secured if possible. It is often sold as *C. byzantinus*.

C. LÆVIGATUS.—A pretty species from the mountains of Greece and the Cyclades. The flowers vary from white to lilac, being distinctly feathered with purple markings. Its usual flowering time is from the end of October to Christmas, but through the winter to March under cultivation. It does not flower freely in cultivation, and, like the allied species, it is seen to best advantage under a cold frame.

C. LONGIFLORUS.—Abundant in the south of Italy, Sicily, and Malta; flowers in October. The flowers are light purple, yellow at the throat. In general aspect it somewhat resembles *C. sativus*, especially in the stigmata, which are usually bright scarlet and entire, but occasionally broken up into fine capillary divisions. In Sicily the stigmata are collected from the wild plant for saffron. It is free-flowering and very ornamental.

C. MARATHONISIUS.—One of the finest white-flowered autumn Crocuses; slightly tinged with yellow at the base. It comes into flower late in October and continues well into November. The plant is fully 6 or 7 inches high.

C. MEDIUS.—A beautiful purple autumn-flowering species, limited to the Riviera and the adjacent spurs of the Maritime Alps. The flowers are produced in October before the leaves, which appear in the following spring, and rarely exceed two or three to a corm; the blossoms are bright purple, veined at the base; the stigmata bright scarlet and much branched.

C. NUDIFLORUS.—A pretty and well-known species. Pyrenees and north of Spain. Naturalised at Nottingham and elsewhere in the Midland counties. Its large bluish-purple flowers are produced in September and October before the leaves. Where established it is difficult to eradicate; the corms produce long stolon-like shoots, which form independent corms on the death of the parent, and the plant soon spreads to considerable distances.

C. OCHROLEUCUS bears many creamy-white flowers, with orange throat, from the end of October to the end of December. It well deserves a cold frame, to preserve its showy flowers from frost and rain.

C. PULCHELLUS.—An autumnal species, invaluable for the garden. The pale lavender flowers, with bright yellow throat, are freely produced from the middle of September to early in December. Seed.

C. SEROTINUS.—South of Spain. Flowers in November. The blossoms are more or less distinctly feathered with darker purple. *C. Salzmanni* is closely allied to *C. serotinus*, but is of larger stature, flowering with the leaves in October and November. It is robust and readily multiplied. As the flowers are liable to injury by frost and snow, it is seen to best advantage under a cold frame. *C. Clusi* closely resembles *C. serotinus*, and flowers with the leaves in October.

C. SIEBERI.—A vernal species common in the Greek Archipelago and the mountains of Greece. The flower is usually bright lilac, orange at the base, but the form found in Crete and the Cyclades presents a great variety of colour, from white to purple, and these colours are

mottled, intermixed, and striped in endless variety, contrasting with the bright orange throat. The Cretan variety is of exceptional beauty. It flowers in cultivation from the end of February to the middle of March.

C. SPECIOSUS.—Among the handsomest autumn Crocuses, flowering at the end of September and early in October. Ranges from N. Persia, through Georgia, the Caucasus, and the Crimea, to Hungary. The perianth segments, 2 inches high, are rich bluish-purple, suffused with darker purple veins, with which the bright orange much-divided stigmata form a beautiful contrast. It has been long in cultivation, and readily multiplies by small bulbels at the base of the corm.

C. SUSIANUS.—The well-known Cloth of Gold Crocus, an early importation from the Crimea. Both the orange and bronzed *susianus* are among the earliest vernal Crocuses, flowering in the open border in February. *C. stellaris* is an old garden plant somewhat resembling *C. susianus*. The flower is orange, distinctly feathered with bronze on the outer coat of the outer segments. It is sterile, and never produces seed. It flowers early in March.

C. VERNUS (Spring Crocus).—One of the earliest cultivated species. Alps, Pyrenees, Tyrol, Carpathians, Italy, and Dalmatia. Naturalised in several parts of England. Remarkable for its range of colour, from pure white to deep purple, endless varieties being generally intermixed in its native habitats, and corresponding with the horticultural varieties of our gardens. Flowers early in March at low elevations, and as late as June and July in the higher Alps. The parent of nearly all the purple, white, and striped Crocuses grown in Holland.

C. VERSICOLOR.—A species long been in cultivation. The flowers present a great variety of colouring, from purple to white, and are variously striped and feathered. It differs from the two preceding species in having the whole of the perianth segments similarly coloured, and the external buff coating of *C. Imperati* and *C. suaveolens* is absent. Its flowering time is March.

C. ZONATUS.—Mountains of Cilicia. Bright vinous-lilac flowers, golden at the base, abundant about the middle of September. It is highly ornamental and free-flowering, and easy of culture. The flowers come before the leaves, which do not appear till spring.

CRYPTOMERIA.—*C. japonica* is a graceful and famous Japanese and Chinese tree much planted in Britain, but rarely thriving except under the genial influence of the sea, and even there never getting to half the noble dimensions it does in Japan.

CUCURBITA (*Gourd*).—There is no order more wonderful in the variety and shape of its fruit than that to which the Melon and Cucumber belong. From the writhing Snake Cucumber, which hangs down 4 or 5 feet long from its stem, to the enormous Giant Pumpkin, their variation in colour, shape, and size is marvellous. Those who have seen a good collection will understand Nathaniel Hawthorne's enthusiasm when he says: "A hundred Gourds in my garden were worthy, in my eyes at least, of being rendered indestructible in marble. If ever Providence (but I know it never will) should assign me a superfluity of gold, part of it should be expended for a service of plate, or most delicate porcelain, to be wrought into the shape of Gourds gathered in my garden." They may be readily grown in this country, and there are many ways in which they may be grown with great advantage—on low trellises; depending from the edges of raised beds; the smaller and medium-sized trained over arches or arched trellis-work, covering banks, or growing on the level earth. A bold and effective use may now and then be made of them on walls and on the roofs of sheds or outhouses, as the roofs "carry" the large leaves and showy fruit so well.

A SELECTION OF GOURDS.—Amongst the most beautiful are the Turk's-cap varieties, such as Grand Mogul, Pasha of Egypt, Viceroy, Empress, Bishop's Hat, etc.; the Serpent Gourd, Gooseberry Gourd, Hercules' Club, Gorilla, St Aignan, M. Fould, Siphon, Half-moon, Giant's Punchbowl, and the Mammoth, weighing from 170 lb. to upwards of 200 lb.; while amongst the miniature varieties the Fig, Cricket-ball, Thumb, Cherry, Striped Custard, Hen's-egg, Pear, Bottle, Orange, Plover's-egg are pretty examples, and useful for ornament. All these are well suited to our climate. Sowing in a frame at the end of April, and exposing the plants to the air during the day to prevent their being drawn, and then removing the frame altogether to harden them off before planting out, is the best way to secure an early growth. Sowing in the open ground under hand-lights would do, but not so well. Where there are waste heaps of rubbish or manure it is a good plan to cover them with Gourds. Although they grow under the conditions described above, they do best with plenty

of manure, and should be mulched or well watered if the soil be not deep and rich.

CUNNINGHAMIA SINENSIS. — A tree of the Pine tribe, and perhaps the most miserable-looking ever introduced. Something like an Arancaria, it is usually full of dead twigs. In its own country, at high elevations, it is said to form good forests. The original tree in our gardens was found in the island of Shusan, and may be of a tender race.

CUPRESSUS (*Cypress*). — Graceful evergreen trees, charming for backgrounds, but not many really hardy, save in seashore and in warm southern districts, and even there they often perish in hard winters. The Monterey Cypress is beautiful in Ireland and in the western coast gardens, but even there it perishes in hard winters. The beautiful Eastern Cypress, so fine in the Italian and Eastern landscape, is worth planting under the best conditions; so distinct a tree would, if hardy, have been everywhere planted long ago.

Many know the beauty of a few of these trees in the small state, but few realise their dignity and beauty as forest trees, such as the Great Japanese Cypress, and if we take the trouble to grow and group them well there are no more effective trees in their perennial verdure. But the system of increasing them adopted in nurseries by which these trees, being very free in growth, lend themselves to increase from cuttings like verbenas and geraniums, does not help to the possession of the trees in all their dignity. *Trees* we should raise always in the natural way—*i.e.*, from seed—and I find some of these Cypresses and their allies break into a number of stems and lose the tree form, the result of this cutting propagation, so entirely needless in the case of forest trees of the highest beauty, which some of these are.

C. FUNEBRIS (Chinese Funeral Cypress).—A hardy, picturesque tree in its own country, and sometimes reaching a height of nearly 50 feet. Robert Fortune described it as having a beautiful effect in the Chinese landscape, but it is not hardy in our country, though here and there it may be seen in sheltered and warm places.

C. GOWENIANA (Gowen Cypress).—A low growing tree from the neighbourhood of Monterey, in California, and of doubtful hardiness in our country. It may be classed with a group, unhappily, many of them tender in this country. It is known from the Monterey Cypress by its spreading, slender, and pendulous habit and small cones.

C. LAWSONIANA (Lawson Cypress).—A tall and beautiful tree of the Pacific coast of N. America, 100 feet high, and very free in our climate. Owing to propagation from cuttings, instead of in the natural way from seed, the tree often breaks into a number of stems, which interferes with its natural habit and beauty. It varies very much into what are called "sports," and which are often a manifestation of disease, especially when they take the variegated form. There are a number of fastigiate forms, but they are mere malformations, and as they get old the branches are pressed so closely together that they die, unless we take the trouble to tie or wire them up in some way to prevent them falling about. The spreading varieties are not so liable to this, but many of them go back, as they get older, towards the natural form of tree of which they are mere states. For the pendulous ones there is perhaps a little excuse—for the globular ones none at all; and the multiplicity of Latin names for these varieties in catalogues does harm in weakening the interest in the natural tree.

C. LUSITANICA (Cedar of Goa).—A name well known through books and lists, and a graceful tree of uncertain origin, but not succeeding in our country, save in seashore gardens and very mild districts. It is naturalised in temperate countries like Spain and Portugal.

C. MACROCARPA (Monterey Cypress).—A very graceful and often stately tree, much planted and succeeding well near the sea coast. It is described in catalogues and even in books on Forestry as hardy, but it is not so, perishing in severe winters. Like many other conifers, it has varieties of little value.

C. NOOTKATENSIS (Yellow Cypress).—Really a most distinct tree, and I think the most precious of the whole family for our country, being quite hardy. It is a native of the N. Pacific coast and British Columbia, and has various synonyms and several variegated varieties of no value. I have found it to thrive in cold ordinary soils, and it is a pleasure to see it at all seasons.

C. OBTUSA (Great Japanese Cypress).—A very beautiful evergreen tree of the mountains of Japan, better known in our gardens under the wrong name of *Retinospora*. It has many forms and so-called varieties which are really states of growth only, and which are nearly always grown in nurseries under the name of "*Retinospora*." The confusion of names in this plant and its varieties has caused its great value as a tree to be

overlooked. It grows nearly 100 feet high, and is very handsome. In its own country it is much used to form avenues.

C. PISIFERA (Peafruited Cypress).—Here, as with *C. obtusa*, there is much confusion of names and giving of Latin ones to mere varieties and states of growth. It is a much smaller tree than the great Japanese Cypress, but a hardy and useful one. Syn. *Retinospora*.

C. SEMPERVIRENS (Eastern Cypress).—One of the most graceful of all evergreen trees, giving distinct and good effects in many parts of the East and N. Africa, spreading into N. India also. In some N. Italian gardens it grows well over 100 feet, as in the Giusti Garden at Verona. In Algeria and Tunis I have seen it forming noble shelters for the orange gardens, far better than any clipped tree could do.

C. THYOIDES (Southern White Cedar).—This is a tree of the N. American woods, sometimes reaching nearly 100 feet high in its best state, inhabiting wet places and swamps in New England, westward and southward, rather near the coast, and forming very dark woods. Coming from a very cold country, it is hardy, and may be planted in wet and marshy places. There are several varieties, one variegated and of no value.

CYANANTHUS (*Lobed C.*).—A pretty Himalayan rock plant, about 4 inches high, flowering in August and September; *C. lobatus* has purplish-blue flower, with a whitish centre, and thriving in sunny chinks in the rock garden. It grows best in a mixture of sandy peat and leaf-mould, with plenty of moisture during growth, and is increased by cuttings. *Campanulaceæ*.

C. INCANUS.—Flowers more freely than *C. lobatus*; and, like that species, it should be planted in a dry, sunny, well-drained position, as, if the situation be too damp, the fleshy root stock is liable to rot. It is even a good plan to place something over the plant during the resting season. The flowers are not so large as those of the other species, but are more charming in colour, their beauty enhanced by the white tuft of silky hairs in the throat of the corolla.

CYCLAMEN (*Sowbread*). — Except the Persian, Cyclamens are as hardy as Primroses; but they love the shelter and shade of low bushes or hill copses. The Ivy-leaved Cyclamen is in full leaf through winter and early spring, and for the sake of the beauty of the leaves alone it is desirable to place it so that it may be safe from injury. It is easy to naturalise the hardier Cyclamens in many parts of the country. Good drainage is necessary to their open-air culture, as they grow naturally among broken rocks and stones mixed with vegetable soil, grit, etc., where they are not surrounded by stagnant water. They are well suited for the rock garden, and enjoy warm nooks, partial shade, and shelter from dry, cutting winds. They may be grown on any aspect if the conditions above mentioned be secured, but an eastern or south-eastern one is best.

They are best propagated by seed sown, as soon as it is ripe, in well-drained pots of light soil. Cover the soil after sowing with a little Moss, to ensure uniform dampness, and place them in shelter out of doors. As soon as they begin to appear, which may be in a month or six weeks, gradually remove the moss. When the first leaf is fairly developed they should be transplanted about 1 inch apart in seed pans of rich light earth, and encouraged to grow as long as possible, being sheltered in a cold frame, but always allowed abundance of air. When the leaves have perished in the following summer, the tubers may be planted out or potted, according to their strength.

There appears to have always been great difficulty in defining the species of Cyclamen, from the great variation in shape and colour of the leaves, both above and below. Too much dependence on these characteristics has caused confusion and an undue multiplication of species. Some of the varieties become so fixed, and reproduce themselves so truly from seed, as to be regarded as species by some cultivators.

C. ATKINSI.—A hybrid variety of the Coum section. The flowers are larger than in the type, varying in colour from deep red to pure white, and are plentiful in winter.

C. COUM (Round-leaved Cyclamen).—This, like the others of the same section, is perfectly hardy, and frequently in bloom in the open ground before the Snowdrop; yet, to preserve the flowers from unfavourable weather, the plants will be better for slight protection, or a pit or frame in which to plant them out. Grown in this way during the early spring, from January to the middle of March, they are one sheet of bloom. When so cultivated, take out the soil, say 1½ to 2 feet deep, place at the bottom a layer of rough stones 9 to 12 inches deep, and cover them with inverted turf to keep the soil from washing down and injuring the drainage; then

fill up with soil composed of about one-third of good free loam, one-third of well-decayed leaf-mould, and one-third of thoroughly decomposed cow manure. Plant 1½ to 2 inches deep, and every year, soon after the leaves die down, take off the surface as far as the tops of the tubers, and fresh surface them with the same compost, or in alternate years give them only a surface dressing of well-decayed leaves or cow manure. During summer, or indeed after April, the glass should be removed, and they ought to be slightly shaded with Larch Fir boughs (cut before the leaves expand) laid over them, to shelter from the extreme heat of the sun. As soon as they begin to appear in the autumn, gradually take them off.

C. CYPRIUM.—This well-defined species has rather small heart-shaped leaves of dark green, marbled on the upper surface with bluish-grey and of a deep purple beneath. The flowers which are pure white, tinted with soft lilac (the restricted mouth being spotted with carmine-purple), are well elevated above the foliage. It is one of the most chaste and beautiful of the hardy kinds. S. Europe. It is found on shaded rocks in mountainous districts.

C. EUROPÆUM (European Cyclamen).—The leaves of this species appear before and with the flowers, and remain during the greater part of the year. Flowers from August to November, or, with slight protection, until the end of the year. The flowers are a reddish-purple. *C. europæum* thrives freely in various parts of the country in light, loamy, well-drained soil, as a choice border and rock-garden plant. Where it does badly in ordinary soil it should be tried in a deep bed of light loam, mingled with pieces of broken stone. It luxuriates on old walls and on the mountain-side, with little earth to grow in.

C. HEDERÆFOLIUM (Ivy-leaved Cyclamen).—Tuber not unfrequently 1 foot in diameter, and covered with a brownish rough rind, which cracks irregularly so as to form little scales. The root-fibres emerge from the whole of the upper surface of the tuber, but principally from the rim; few or none issue from the lower surface. The leaves and flowers generally spring direct from the tuber without any stem (there is sometimes, however, a small stem, especially if the tuber be planted deep); at first they spread horizontally, but ultimately become erect. The leaves are variously marked; the greater portion appear after the flowers, and continue in great beauty the whole winter and early spring, when, if well grown, they are one of the greatest ornaments of borders and rock gardens. Often these leaves are 6 inches long, 5½ inches diameter, and 100 to 150 spring from one tuber. This species has been naturalised on the mossy floor of a thin wood, on very sandy, poor soil, and may be naturalised almost everywhere. It would be peculiarly attractive in a semi-wild state in pleasure grounds and by wood walks.

C. IBERICUM (Iberian Cyclamen).—There is some obscurity respecting the authority for the species and its native country. The leaves are very various. It flowers in spring, the flowers varying from deep red-purple to rose, lilac, and white, with intensely dark mouth.

C. VERNUM (Spring Cyclamen).—The leaves rise before the flowers in spring; they are generally more or less white on the upper surface, and are often purplish beneath. Though one of the most interesting species, and perfectly hardy, it is seldom cultivated successfully in the open border or rock garden; it is impatient of excessive wet about the tubers, and likes a light soil, in a rather shady nook sheltered from winds, its fleshy leaves being soon injured. The tubers should be planted deep; say not less than 2 to 2½ inches below the surface.

CYDONIA (*Quince*).—Among the most beautiful of hardy flowering shrubs long known as *Pyrus*. Free, hardy, of rich colour, and easily grown. Few shrubs have given so many fine varieties ranging in colour from deep crimson and scarlet through shades of cherry and salmon-red to pink and pure white. The flowers also are larger and very abundant, there is much variety in habit of growth, and whereas the old kinds are best on a wall in our colder districts, these garden forms do well anywhere in the open in the south. They thrive in almost any soil, and even on chalk, though what they like best is a deep warm loam, and what most tries them are dry and sandy heath soils, where they grow slowly and flower less freely. Their flowers continue in succession during several months, and branches cut while in bud will open prettily in a room and last fresh for a considerable time in water. Syn. *Pyrus japonica.*

C. JAPONICA.—Varieties of these are numerous, though many are much alike. Among the best are Knap Hill Scarlet, with large crimson-scarlet flowers; *nivalis*, the best pure white; *albo-cincta*, in which they are tinted pink; *coccinea*, bright scarlet; *princeps*, glowing crimson; *umbilicata*, bright pink and one of the best, its flowers thickly clustered and yet well distributed; *Moerloosei*, crimson-scarlet; *rosea*, rosy-pink; *sulphurea*, pale creamy-yellow; and *cardinalis*, deep purplish-crimson. New Continental forms are *Baltzii*, with rosy-red flowers on the new wood; *Mallardi*, rosy flowers edged with

white; *Gaugardi*, salmon-red; *semperflorens*, with a very long succession of bright red flowers; and *macrocarpa* and *Columbia*, remarkable for their large fruits, which in the last kind sometimes measure 10 inches in circumference. There are beside several kinds of distinct habit, useful for planting in the rock garden where the larger kinds would be out of place, and yet where the trailing shoots show to perfection. These are *C. Sargenti*, from the mountains of Japan, with a semi-prostrate habit and rather small, bright red flowers borne very freely. *C. pygmæa* is only 2 feet high, of a more erect habit, and so near *C. Maulei* in appearance and colour of its orange-salmon flowers that it is supposed to have come from that kind. *C. Simonii*, a seedling form of *C. japonica*, is of prostrate habit, with large blood-red flowers of rich effect in the rock garden.

C. LAGENURI var. WILSONI.—A handsome shrub of recent years is Wilson's Quince, *C. Lagenuri* var. *Wilsoni*, bearing pale pink flowers in late winter and large attractive fruits which adhere to the branches until the end of November,

C. MAULEI (Maule's Quince). — This differs in its smaller growth, smaller foliage, spiny branches, smaller flowers, and also in the fruits, which are more deeply grooved, turn to a bright golden colour with ruddy cheeks, and are strongly scented. The plant has shown far less variation than the Japan Quince, but there are a few named forms, and other good seedlings distinct in colour are now in cultivation. The best variety is *superba*, with flowers of a deeper, richer colour than the bright orange-scarlet of the parent. This is a beautiful shrub of prostrate habit, covered with flowers in early May, and pretty again in autumn when loaded with its handsome apple-like fruits.

Flower Spray of the *Vranja Quince.*

C. SINENSIS and C. CATHAYENSIS are kinds of minor interest seen only in botanical collections, but a word may be said as to *C. vulgaris*, the Common Quince, a native of Europe, which, though grown chiefly for its fruit, is a charming tree for the lawn, especially when old. In spring it bears large bluish-pink flowers, and in autumn is again attractive with its large golden fruits. The pear-shaped variety is the most ornamental, the branches of well-laden trees sweeping gracefully to the turf.

FRUITING KINDS.—Beside the older varieties of Quince known for generations past, there are now many improved forms. The old *Orange Quince*, a round-shaped fruit of deep colour, was long the standard American kind, but has now largely given place to *Rea's Mammoth*, with larger fruits of tender flesh, free from the hardiness and harshness of the old Pear Quince. A newer kind, *Champion*, is also grown in the States. It begins to bear very early and its fruits come a fortnight later than the *Orange*—a useful succession where the winter is not too early. They are apple-shaped, bright yellow, of good quality and rich colour, while 18 ounces is no uncommon weight. Another good late kind much grown for the American market is *Meech's Prolific*. Other American varieties little known in this country are the *Fuller Quince*, with large pale yellow fruits of soft flesh and fine flavour; and *Van Deman*, a seedling from the Portugal Quince, with handsome fruits of great size and good quality. A variety thought well of in France is *De Bourgeaut*, a vigorous tree with large rounded fruits of golden yellow. Nor are the new sorts confined to America, for several good ones have been found in S. Europe, such as the *Lescovez Quince* (from the town of that name, where it has grown for generations), an apple-shaped fruit of immense size and refined flavour, said to be the best of all for marmalade, yielding a clear jelly of rich colour. The tree is of rather weak habit, with small and very dark green leaves. Another kind from the Balkans is the *Bereczki Quince* (also known as the *Vranja*, from its native place), a tree of robust growth with large leaves, very free even from a small size in its large golden fruits with a clear shining skin. The Quince *De Baden* bears large pear-shaped fruits; *Monstrueux de Bazine*, fruits of the same shape, but nearly 2 lb. in weight and excellent for preserves; while the *Zucker* or "Sugar Quince" is a smaller kind from Asia, very sweet and good for stewing. Other sorts offered by Continental growers are the Maskat Quince, the Persian Quince, the Constantinople Quince, and the *Angers*; this last comes freely from seed, and is that most used for grafting Pears.

CYNARA (*Artichoke*).—This plant, *C. Scolymus*, much grown as food, is of noble form and much beauty. Its long, silvery, deeply divided leaves and purplish flower-heads make it useful for pleasure grounds, but it may get killed in hard winters.

CYNOGLOSSUM AMABILE (*Chinese Hound's-tongue*).—A handsome Chinese plant grown for some years in my garden. We raise it from seed freely, but are not sure as to its endurance in our country.

CYPERUS (*Galingale*).—A water plant of fine form from 2 to 3 feet high, *C. longus* is crowned by a handsome, loose, umbellate panicle of chestnut-coloured flower-spikes, at the base of which there are three or more leaves, often 1 or 2 feet long, the lower ones of a bright shining green arching gracefully. The root-stock is thick and aromatic, and was formerly used much as a tonic. A rare native plant.

CYPRIPEDIUM (*Lady's Slipper*).—Handsome Orchids, embracing several hardy species, of which the Mocassin-flower (*C. spectabile*) is the finest cultivated hardy kind.

C. ACAULE (Stemless Lady's Slipper).—A dwarf species with a naked downy flower-stalk, 8 to 12 inches high, bearing a green bract at the top, flowers early in summer, large, solitary, purplish with a rosy-purple (rarely white) lip, nearly 2 inches long, which has a singular closed fissure down its whole length in front. N America in woods and bogs. Thriving in moist, peaty, or sandy soil.

C. CALCEOLUS (English Lady's Slipper).—The only British species and the largest flowered of our native Orchids, 1 to 1½ feet high, flowers in summer, solitary (sometimes two) large flowers of a dark brown colour, with an inflated clear yellow lip netted with darker veins, and about 1 inch in length. N. Europe, and occasionally in the northern counties of England, where, however, it is now almost exterminated. Very ornamental for the rock garden, where it should be planted in sunny sheltered nooks of calcareous soil, or in narrow fissures of limestone rock, in well-drained, rich, fibrous loam, in an east aspect.

C. GUTTATUM (Spotted Lady's Slipper).—A beautiful kind, 6 to 9 inches high; flowers in summer solitary, rather small, white, heavily blotched, with rosy purple. Grows in dense forests amongst the roots of trees in black vegetable mould. Requires a half-shady position in leaf-mould, moss, and sand, and not wet in winter. N. Europe and Asia.

C. JAPONICUM (Japanese Lady's Slipper).—About 1 foot high, and its hairy stems, which are as thick as one's little finger, bear two plicate fan-shaped leaves of bright green, rather jagged round the margins. The flowers are solitary, the sepals being of an apple-green tint; the petals, too, are of the same colour, but are dotted with purplish-crimson at the base.

C. MACRANTHUM (Large Lady's Slipper).—A choice species, the flowers large, of a uniform purplish-rose with deeper coloured veins; early in June. Lip globose, inflated, and finely marked with deep purple reticulations. Grows best in pure loam of a heavy nature. Siberia.

C. PUBESCENS.—A dwarf species with a pubescent stem, seldom more than 2 feet high, flowers early in summer, on each stem one to three flowers; scentless, greenish-yellow, spotted with brown, with a pale yellow lip from 1½ to 2 inches long, and flattened at the sides. America, found in bogs and low woods, from Pennsylvania to Carolina. An accommodating species, and does well in leaf-soil, loam, stones, and grit.

C. SPECTABILE (Mocassin-flower).—The most beautiful of this group; 15 inches to 2½ feet high, flowers in summer, one or two on each stem (rarely three), large, with inflated, rounded lip, about 1½ inches long, white, with a large blotch of bright rosy carmine in front. A variety (*C. s. album*) has the lip entirely white. In America it grows in open boggy woods, moist meadows, and also in peaty bogs in the Northern States. Good native specimens produce from fifty to seventy flowers on a single tuft, 3 feet across, formed on a thick mat of fleshy roots. The plant is hardy, and succeeds if planted out in a deep, rich, peaty soil, with loam and leaf-mould added. Woodland shade and moisture are very desirable, with a few nodules of sandstone or rough sandstone grit mixed with the soil. It also thrives in turfy loam on a moist bottom; in any case, deep planting is necessary.

Mocassin-flower (*Cypripedium spectabile*).

CYRILLA RACEMIFLORA (*Leather-wood*).—A shrub, or low tree, covering a vast area in the warmer parts of America, yet hardy in the warmest parts of this country, where it grows

as a shrub of about 5 feet high, of slender growth, with fine glossy green foliage, which is nearly evergreen in warm places, and in a mild season. The flowers come as narrow, slender white spikes of graceful effect from June to August, and the leaves take glowing tints of orange and crimson in the autumn. Seed.

CYSTOPTERIS (*Bladder Fern*).—The cultivated kinds of this native group are small elegant Ferns of delicate fragile texture. They grow on rocks and walls, chiefly in mountainous districts. The best-known are: *C. fragilis*, which has finely-cut fronds about 6 inches high. It is of easy culture, succeeding in an ordinary border, though seen to best advantage on shady parts of the rock garden in a well-drained soil. There are two or three varieties, *Dickieana* being the best. *C. alpina* is much smaller, and when once established not difficult to cultivate or increase, but more affected by excessive moisture than *C. fragilis*. A sheltered situation in a well-drained part of the rock garden suits it. *C. montana* is another elegant plant requiring the same treatment as *C. fragilis*.

CYTISUS (*Broom*). — Beautiful shrubs, mostly from the warmer and arid hills of S. and W. Europe, some hardy in our country. They are easily raised from seed, and profuse in effective bloom. Many kinds come freely from seed scattered here and there, if care be taken to give the young plants some little protection from accident in their earliest stages; it may also be taken as an axiom that no kind should be grafted that can possibly be obtained on its own roots.

CYTISUS ALBUS (White Spanish Broom).—A graceful shrub, reaching a height of 5 or 6 feet in three or four years from seed, while old plants sometimes reach 15 feet. When thickly covered with its white blossoms, borne in long racemes, there are few finer flowering shrubs. The plant ripens seed in abundance, from which young plants are easily raised. Two or three varieties of this kind are grown—*incarnatus*, bearing flowers tinged, especially when in bud and newly opened, with pink or red-purple; *multiflorus*, a free-flowered garden variety with flowers of creamy white; and *grandiflorus*, with blossoms that are larger and of a fine pure white.

C. ARDOINII (Dwarf Alpine Cytisus).—A low-trailing shrub, 4 to 6 inches high, and a gem for the rock garden. It is covered during April and May with deep yellow flowers, thriving in dry and sunny spots, its silky trifoliate leaves carried upon fine rod-like stems. Maritime Alps. Cuttings or seed.

C. ARGENTEUS (Silver-leaved Cytisus).—A silvery-leaved plant found in the Maritime Alps, its leaves and stems densely clothed in thick down white, and growing in the sunniest and most arid spots.

C. AUSTRIACUS (Austrian Cytisus).—A hardy kind from the east of Europe, growing as a compact leafy bush of 2 to 4 feet, bearing terminal clusters of yellow flowers during early summer and again in autumn.

C. BEANII (Bean's Cytisus).—A cross between *Ardoinii* and *biflorus*, which originated in the Royal Gardens, Kew. It is a dwarf, prostrate shrub, with the habit of *Ardoinii*, useful in masses for the rock garden, its yellow flowers coming early in May.

C. BIFLORUS (Twin-flowered Cytisus).—The earliest of the Brooms, it is neat in habit, growing very freely and about 4 feet high. The bright yellow flowers appear in the axils of the leaves throughout the long shoots.

C. CAPITATUS (Cluster-flowered Cytisus).—A low, semi-evergreen shrub growing in the outskirts and clearings of sunny woods throughout C. and S. Europe, bearing clusters of pale yellow flowers at times shaded with bronze, at the tips of the long erect shoots. Though less showy than some kinds, its habit is neat and compact, and it flowers from the middle of July into autumn, when few sorts are in beauty. Seed.

C. DECUMBENS (Trailing Cytisus).—A dwarf, prostrate shrub from E. Europe, with large pale yellow flowers in long erect spikes coming from June till August, and pretty in the rock garden.

C. GLABRESCENS (Italian Cytisus).—A hardy plant from the mountains of N. Italy, and almost untried in gardens, though pretty as a rock plant. It forms a small bush with the pendulous habit of *C. purpureus*, but with golden flowers crowded in the axils of the leaves; these are deciduous, smooth above, and covered with soft hairs beneath.

C. HIRSUTUS (Hairy Cytisus).—A dwarf shrub 1 to 2 feet high, with trailing stems and yellow flowers in June and July, and useful in the rock garden or the front line of the shrubbery. The hairiness is only in the young growths, the adult leaves being smooth. S.E. Europe.

C. KEWENSIS (Kew Cytisus).—A beautiful prostrate plant raised in Kew Gardens as a cross between *Ardoinii* and the White Broom, but distinct in habit from both parents. It spreads by long trailing shoots, rising only about 3 inches, but in old plants covering a wide surface. Its creamy white or pale yellow flowers

thickly cover the pendent shoots during May and June.

C. NIGRICANS (Summer-flowering Cytisus).—Of neat habit, with long slender shoots reaching 6 feet or more when full grown, hardy and thriving in dry warm ground. The pale yellow flowers are borne in long erect spikes of 9 inches at the ends of the new growths; it is easily raised from seed. Two or three varieties of this plant are grown in *longispicatus*, with longer spikes of flower, and *Carlieri*, with a long season of bloom and showing flower-spikes and reddish seed-pods intermingled.

C. PURGANS (Auvergne Broom).—A bush of 2 or 3 feet, the flowers, in April and May, yellow and fragrant, while the plant retains its good habit longer than many kinds. It is easily increased from seed or cuttings under glass in August. A native of the mountains of France, it is quite hardy.

C. PURPUREUS (Purple Cytisus).—A hardy plant from E. Europe, often grafted standard high upon the Laburnum, and in that way short lived; it is better on its own roots as a low spreading bush in rock garden, its drooping shoots hung with purple flowers from May onwards. It is so readily increased from seed or cuttings that there is no need for grafting. There are several varieties.

C. SCHIPKÆNSIS (Schipka Cytisus).—Of low spreading habit, flowering in a long succession from the end of June, the yellowish-white flowers borne in clusters. It is distinct, hardy, but a greatly overrated kind.

C. SCOPARIUS (Common Broom).—Though a native wild plant, the Broom sometimes suffers in severe winters, especially when upon low valley bottoms; in this way is less hardy than the white and early Brooms. There are several varieties of the Common Broom, the finest is André's Broom (*C. Andreanus*), in which the lower petals are richly shaded with crimson or bronze colour. When grafted it never lives long, often disappearing suddenly; but on its own roots it is as indifferent to adverse conditions as any of the Brooms, fine mature plants reaching a height of 12 feet or more, fully branched, and of great beauty when in flower. The most effective way to grow the Broom in country places is to throw it out of hand on any waste spots, such as railway banks, newly-formed fences, bare patches in woodland.

C. VERSICOLOR (Many-coloured Cytisus).—A peculiar plant, hybrid of *purpureus* and *hirsutus*, in growth and outline like the Purple Cytisus. Its leaves and shoots are, however, thickly pubescent, and its flowers, appearing in May, pass from creamy-white to rose and lilac, the several stages showing in the same cluster. Though not a new plant, this hybrid is uncommon and distinct.

The many forms of Laburnum, including the peculiar graft-hybrid once known as *Cytisus Adami*, are now classed by themselves in a separate group.

DACRYDIUM (*Huon Pine*).—A tree of the Pine order of exquisite grace, but not hardy in Britain except in the Cornish and Devon gardens, and others of the south of England and Ireland. There are two species, *D. Franklini* (Huon Pine) and *D. cupressinum* (New Zealand Cypress), a common New Zealand tree attaining nearly 100 feet in height.

DAHLIA.—Distinct groups of Dahlias present a fine effect, if the colours are well chosen, and many good effects are spoilt by mixing up tall and dwarf bushy kinds indiscriminately.

"CACTUS" DAHLIAS.—These originated from *D. Juarezi*, which was introduced from Mexico about 1879, and they retain the characteristic shape of that species, the petals twisted, so to say, and reminding one of those of some of the Cacti. The earlier Cactus Dahlias had one fault—hiding the flowers amongst the leaves; but this is to a large extent changed, so that we have now a beautiful race of garden plants for summer and autumn, with flowers of bold form and charming and varied colours. A new group is formed by the single Cactus kinds. The flowers are quite single, about as large as those of a good single Dahlia of the ordinary type, and with twisted petals.

The following are good garden varieties:—Amos Perry, Avoca, Clarisse, Duchess of Sutherland, Eclaire, Erecta, Glare of the Garden, Hon. Mrs Greville, Mauve Queen, Mrs J. H. Usmar, Juarezi, Primrose Queen, Sweet Briar, White Ensign.

COLLERETTE DAHLIAS.—A comparatively new section of virtually single-flowered varieties which is well suited to the garden, and rapidly becoming popular. Good sorts are Argyll, Bonfire, Black Watch, Cormorant, Cameron, Eden, Fusilier, Nightingale, Royal Scot, Starling, Scarlet Queen, Wren.

FANCY DAHLIAS.—These are not so much grown in gardens as formerly, but are still seen at the exhibition, Dahlias being shown in a far freer way than was usual a generation ago, and the Cactus and Single

classes have, to some extent, overshadowed the formal Show and Fancy varieties. The reason why these are less valuable than many other kinds of Dahlia in the garden is because of the weight of the flowers. There is little graceful beauty about them, the stems being bent with the burden of a too heavy blossom, hence the greater popularity of the many lovely Cactus varieties.

Fancy Dahlias are Buffalo Bill, Charles Wyatt, Comedian, Duchess of Albany, Frank Pearce, Gaiety, General Gordon, H. Eckford, H. Glasscock, Fanny Sturt, Mrs Ocock, Mrs Saunders, Peacock, Rebecca, Rev. J. B. M. Camm, Sunset, T. W. Girdlestone.

PÆONY-FLOWERED DAHLIAS.—The flower-heads are of huge size on vigorous habited plants. Aphrodite, Amber Queen, Beacon, Edina, Fire Dragon, Holman Hunt, Old Gold, Portia, and White Flag are some good and distinct sorts.

POMPON OR BOUQUET DAHLIAS.—These should be quite small, as the name Pompon suggests, not like a Show or Fancy Dahlia. Although many additions have been made to this section, the pure white variety, White Aster, still retains its popularity, and it is grown largely for cutting, and also for its effects. The Pompon Dahlias are very free-blooming, throwing their charming flowers well above the leaves. Admiration, Arthur West, Countess von Sternberg, Coquette, Crimson Beauty, Cupid, Darkness, Dove, E. F. Jungker, Eurydice, Eva, Fairy Tales, Gem, German Favourite, Glowworm, Golden Gem, Hedwig Pollwig, Juno, Lilian, Little Bobby, Little Ethel, Marion, Midget, Pure Love, Tommy Keith, Vivid, White Aster.

SINGLE DAHLIAS.—*D. coccinea* (*D. Merckii*), *D. variabilis*, and others formed the foundation, so to say, of this group. The value of Single Dahlias as beautiful garden flowers was not considered until a reaction set in against the show blooms, and then the elegant single kinds became popular. In the best kinds the flowers are carried erect above the foliage, the growth bushy and the flowers abundant. No summer flower gives a greater variety of brilliant colours, rich selfs and delicate hues of mauve and rose to pure white. With all this choice, one, unfortunately, sees much of the striped kinds, too often praised, for the reason perhaps that they are well shown at some exhibition; but a new Dahlia should be seen in the garden to judge of its merits. The striped kinds are also sportive, like striped Carnations, and depend in a large measure for their peculiar colour upon the weather. This class must not be confounded with those that have flowers boldly margined with colour. As the round-flowered form of Single Dahlia is declining in popularity one sees less of the big saucer-shaped blooms, so large that it was necessary to support them when gathered. These flabby varieties won few friends, and the more recent kinds are far smaller and better. Cardinal, Chilwell Beauty, Conspicua, Duke of York, Duchess of Westminster, Eclipse, Ensign, Evelyn, Gulielma, Jack, James Scobie, Kitty, Morning Glow, Midget Improved, Mikado, Magpie, Nellie, Paragon, Rose Queen, Yellow Boy, Snowdrop.

"STAR" OR "COSMEA-FLOWERED" DAHLIAS.—These are invaluable for the garden or as cut flowers, and being of medium size, excellent in decoration. Crawley Star, White Star, Yellow Star, Mars, Jupiter, and Mercury are some of them. All are single flowered or semi-double and prodigal bloomers.

TOM THUMB DAHLIAS.—This is a very dwarf race, the plants forming little bushes, but they are not satisfactory, as they appear not to bloom with great freedom, whilst the growth does not retain its true dwarf character. When true, the habit is compact, dense, and the single flowers borne well above the mass of leaves. Fortunately the colours of the flowers are for the most part simple, and raisers should steer clear of the ugly striped kinds. Dwarfing any flower naturally tall and graceful is a doubtful practice.

SPECIES.—Amongst these we may note the following:—

D. COCCINEA.—A tall plant with bright scarlet flowers that rarely vary. Nearly related to it, and differing only in some slight points, is *D. Cervantesi*, also with showy scarlet flowers.

D. GLABRATA is a beautiful plant of dwarf spreading growth, more slender than any of the other species. The flowers are smaller than those of other kinds, and vary from pure white to deep purple. It is hardier than any other Dahlia, and plants left in the ground are generally uninjured throughout the winter. Its dwarf growth adapts it for positions unsuitable for the latter kinds, and it has a good effect in masses, its colour being unlike that of any other Dahlia. It

is known also as *D. Mercki*, *repens*, and *Decaisneana*.

D. GRACILIS.—A distinct and graceful plant, with slender stems and finely divided foliage, which gives it a freer habit than any other Dahlia. The bright-scarlet flowers are of the ordinary size.

D. IMPERIALIS.—Large and graceful much-divided leaves, and flowers of a beautiful French white, thrown up in a great cone-like mass. It rarely flowers in the open air, but it is of service both in the flower garden and conservatory. Planted in rich soil, and placed in a warm, sheltered position in the open air at the end of May, it grows well in summer.

D. JUAREZI.—Now well known. It is the more desirable because of its easy culture, as it requires no different treatment from ordinary Dahlias. It is not quite double, but is very fine in form and brilliant in colour, though it flowers somewhat sparsely.

D. VARIABILIS.—Supposed parent of all the garden varieties. The wild plant has scarlet flowers like *coccinea*, and is of similar growth. A packet of seed, however, will yield plants with flowers of all shades, from crimson to white and yellow.

To get a good result it is essential to have rich, deep, and moist soil, and to put out strong plants as early as may be safe, so as to secure a good growth or autumn bloom. If planted in May and frost is feared, protect the young plants at night by turning a garden pot over them. Pot roots of the previous year and the more youthful portions of the old stools are particularly valuable for garden beds and borders where a big early display is required. Plant these in April 4 to 6 inches deep. If the soil is not deep, rich, and moist, manure-water should be used. Watering is usually necessary in early growth, afterwards it is not so in moist districts where the plant is well treated as regards depth and

Cactus Dahlia "Juarezi."

quality of soil. In dry places water is essential in most seasons. Staking and tying out the shoots must be attended to, as the stems break early under little wind-pressure. Earwigs are great enemies to Dahlias, but can be trapped in small round troughs, which may be got from any pottery. They may also be caught on pieces of Hemlock stem, 6 inches long, by leaving a joint at one end and sticking the pieces here and there through the Dahlias. Small pots, with a little bit of dry Sphagnum Moss inside, inverted on the tops of stakes, also form good traps.

In increasing Dahlias the usual practice is to take up the roots and store them in a dry frost-proof cellar in winter. Dahlias may be propagated by cuttings, root-division, and seed, the last way being used only where new kinds are sought. Cuttings are the means adopted by the specialists, though division of the roots is also practised by the amateur. If started in February or March in a temperature of 60° to 70° F., each crown will produce three or four cuttings every two or three days. These may be taken off close to the crown when about 3 inches long. When the crowns have supplied all the cuttings that can be got from them they may be divided, and therefore nothing is lost. Cuttings may be successfully struck during the summer months; but this is unusual except in the case of choice varieties, or when pot roots are desired for the following year. Three-inch pots are best for putting the cuttings into, one or two in each pot. They should be plunged in a brisk bottom-heat, covered with hand-glasses, and shaded from bright sunshine. In less than a fortnight they will be all rooted, and may be potted off singly into large 3-inch pots.

To raise seedlings, sow the seed in heat in February, and treat the young plants in the same way as cuttings.

As long as the weather keeps mild Dahlia roots are best in the soil, and need not be taken up till the end of November; but should sharp frosts be followed by heavy rain they should be promptly removed from the ground. Lift the roots on a dry day and cut off the stems to within 2 or 3 inches of the crown. Remove the greater portion of the soil from the tubers and lay the latter out in the sun to dry before storing. The floor of a greenhouse where frost can be excluded, or a dry cellar, is a good place to store the roots in. A little ventilation is necessary to keep them from getting mouldy; but a hot, dry atmosphere must also be avoided, as the tubers might shrivel in it. The roots may be kept plump during the winter by storing in soil in a cool place secure from frost.

The species of Dahlia are natives of Mexico and adjacent regions—1, *arborea*; 2, *astrantiæflora*; 3, *coccinea*; 4, *excelsa*; 5, *gracilis*; 6, *imperialis*; 7, *Maximiliana*; 8, *Mercki*; 9, *platylepis*; 10, *pubescens*; 11, *scapigera*; 12, *variabilis*; 13, *Juarezi*.

DAPHNE (*Garland Flower*).—Alpine and mountain shrubs, beautiful, fragrant, and of high value for the garden. They are chiefly natives of Europe, and in cultivation do best when shaded in summer from the midday sun, and in winter screened from cold winds. If nurtured by the fallen leaves of trees, they will grow with a vigour that we can scarcely hope to see in ordinary soil. They have but few roots, and are best transplanted when young. The best soil is a mixture of free loam and decayed leaf-mould, with some old road-sand added. None of them require a rich soil, and some of them even prefer old road-sand to any other.

D. ALPINA (Mountain Mezereon).—A dwarf summer-leafing and distinct rock shrub, about 2 feet high, the flowers yellowish-white, silky outside, fragrant, in clusters of five from the sides of the branches. It is a low, branching shrub, flowering from April to June, and bearing red berries in September. C. and S. Europe.

D. ARBUSCULA.—A native of Transylvania, it bears a resemblance to the small-growing *D. petræa* from the same region, differing mainly in its more robust habit. It is also said to grow wild in Grass-land, whilst *D. petræa* more frequently inhabits rocky ground. The evergreen leaves are linear and not more than 1 inch long, whilst the fragrant, rosy-pink flowers are borne in terminal heads of six flowers to ten flowers each. It is essentially a plant for the rock garden, and should be planted in soil containing lime or amongst limestone rocks. Seeds.

D. BLAGAYANA (King's Garland Flower).—A dwarf alpine shrub, 3 to 8 inches high, of straggling growth, the leaves forming rosette-like tufts at the tips of the branches, encircling dense clusters of fragrant, creamy-white flowers, blooming in spring and thriving in the rock garden. It is vigorous and free if planted in well-drained loam—calcareous for preference—and leaf-soil, and likes best a rather cool

spot. Increased by layers. Layering, in the strict sense, is not necessary. Pegging down the shoots of the previous season's growth, or weighting them down to the soil by placing stones upon the branches, is ample. If this is indulged in annually, new root activity and increased vigour are continuously promoted. The species is so choice and fragrant as to be worthy our best endeavours to make it a success.

D. CNEORUM (Garland Flower).—A dwarf spreading shrub, from 6 inches to 10 inches high, and bearing rosy-lilac flowers, and so sweet that where much grown the air often seems charged with their fragrance. It is a native of most of the great mountain chains of Europe, and is one of the best plants for the rock garden, thriving in peaty and very sandy soils; in stiff soils often fails; is usually increased by layers.

Garland Flower (*Daphne Cneorum*).

D. COLLINA (Box-leaved Garland Flower).—The leaves of this much resemble in shape and size those of the Balearic Box, the upper surface of a dark glossy green. The flowers are in close groups, and of a light lilac or pinkish colour, the tubes rather broad and densely coated with silky white hairs. It forms a low, dense, evergreen shrub, the branches of which always take an upright direction and form a level head, covered with flowers from February to May. S. Europe. *D. Neapolitana* is a variety of it.

D. EDGWORTHIA CHRYSANTHA (Golden Daphne).—A very distinct plant of China and Japan, flowering in midwinter. Is closely related to the Daphnes, is very interesting in structure of the flower, and has a delicate fragrance. Our midwinter climate invites us to take it into the house, where it will help to prove that there is no dearth of flowers in winter, even for those who have no hot-house. The English name I here propose for it for the first time is as above. It seems quite hardy here, but may require a wall in the north.

D. FIONIANA (Fion's Garland Flower).—A compact shrub, the heads of bloom are in clusters, five fragrant flowers in each, of a pale lilac colour, the tubes densely covered externally with short silvery hairs, This shrub flowers from March to May, and is hardy about London.

D. GENKWA (Lilac Garland Flower) is a summer-leafing shrub of from 2 to 3 feet in height, with downy branches and fragrant violet-coloured flowers thickly set on the leafless branches in early spring. There appears to be several varieties of *D. Genkwa*, some with much larger flowers than others, and some of a darker shade of purple. It is not quite hardy in cold districts. Syn. *D. Fortunei*.

D. HOUTTEIANA (Van Houttes Mezereon).—This forms a robust spreading bush, 3 or 4 feet high, with all the leaves collected on the young branches, while the old ones are naked. It is distinct, hardy, flowering in the spring before the leaves appear, and is said to be a hybrid between *Mezereon* and the Spurge Laurel. Its leaves are from 3 to 3½ inches long, purple on the upper side when fully developed, and when quite young and in the bud state, of a dark purple colour. The flowers are small, dark purple, quite smooth, and are borne along the shoots of the previous year before the young leaves appear.

D. MEZEREUM (Mezereon).—A wild plant in English woods, is a charming and fragrant bush, and the earliest to flower, often in February. Where the shrubby rock garden is carried out, nothing is more lovely for its adorning than a group of this. Though quite hardy, it is slow, and not so pretty on some cold soils. It is best to begin with little plants, and it is easily raised from seed, thriving best in calcareous soils.

D. ODORA (Sweet Daphne).—A fragrant and beautiful kind, in mild and southern districts hardy on the rock garden, usually best on western aspects; but in the north a greenhouse plant. There are varieties called *alba*, *rubra*, *Mazeli*, *punctata*. *Mazeli* is, according to Max Leichtlin, hardier than the older kind. Syn. *D. indica*. China.

D. PETRÆA (Syn. *D. rupestris*) (Rock Garland Flower).—A neat little shrub, with erect shoots forming dense, compact tufts, 2 inches high, often covered with flowers of a soft-shaded pink, in clustered heads. It is a mountain plant, growing wild in fissures of limestone in peaty loam, of slow growth, and it takes some years to form a good tuft. It seems to thrive in very stony and peaty earth, with abundance of white sand, and should be planted in a well-drained but not a dry spot. *D. p. grandiflora* is a much larger form, well deserving its name.

D. STRIATA (Fairy Garland Flower).

—A hardy trailing kind, forming dense, spreading masses, 1 to 3 feet across, in June and July are covered with rosy-purple scented flowers in clusters. The spreading habit of this plant recommends it for covering bare spots in the rock garden. Alps.

DAPHNIPHYLLUM. — Evergreen shrubs of fine effect of foliage and little beauty of flower. *D. Glaucescens* grows well in the home counties so far as tried, the leaves over 6 inches long, and glaucous underneath, the flowers small, in the autumn; but the habit is so fine wherever evergreens are cared for that this will be worth growing, at least in the southern and warmer counties. The other species known is *D. josoenses*. It is a much dwarfer plant, and is an under shrub in the forests of Yezo. These plants seem to be hardy enough in the southern districts of Britain, and rich as we are in evergreen plants in Britain, these are distinct enough to take a good place.

DARLINGTONIA (*Californian Pitcher-plant*).—A most singular plant, resembling the Sarracenias, but very distinct; the leaves of *D. californica* rise to a height of 2 feet or more, are hollow, and form a curiously shaped hood, from which hang two ribbon-like appendages, the hood often a crimson-red, and the flowers are almost as curious. This remarkable plant is found to grow in our climate if care be taken with it, and it would be difficult to name a more interesting plant for a sheltered bog garden. It is less trouble out of doors than under glass; indeed, it only requires a moderately wet bog in a light spongy soil of fibrous peat and chopped Sphagnum Moss. A place should be selected by the side of a stream, or in any moist place, and the plants should be fully exposed to direct sunlight, but sheltered from the cold winds of early spring when they are throwing up their young leaves. They require frequent watering in dry seasons, unless they are in a naturally wet spot. Seed.

DATISCA (*Bastard Hemp*).—*D. Cannabina* is a tall and graceful herbaceous perennial from 4 to 7 feet high, the long stems clothed with large pinnate leaves, yellowish-green flowers appearing towards the end of summer. The male plant is very strong and graceful in habit; the female remains green much longer than the male; when it is laden with fruit, each shoot droops gracefully, and the plant should be included in any selection of hardy plants of good form. Seed will be found the best way to increase it, and would secure plants of both sexes. The border is not its place; it is, above most other plants, suited for the grassy margin of an irregular shrubbery. Himalayas.

DATURA (*Thorn Apple*).—Natives of Mexico and similar countries, none are hardy, but owing to rapid growth some succeed well if treated as half-hardy annuals, and make effective plants in a short season. The best are: *D. ceratocaula*, from 2 to 3 feet high, with large, scented, trumpet-like flowers, often 6 inches in length, and 4 or 5 inches across, white, tinged with violet-purple, expanding in the afternoon and closing on the following morning. *D. fastuosa* is a handsome species, having white blossoms smaller than the preceding; there is a fine variety of it with the tube of the flower violet and the inside white. The most striking forms of this species bear "double" flowers, the primary corolla having a second and sometimes a third corolla arising from its tube, all being perfectly regular in form, and often being parti-coloured, as in the single variety with violet flowers. *D. meteloides* is a handsome Mexican plant, called in gardens Wright's Datura. Isolated specimens of it have a fine aspect in sunny but sheltered nooks. It is from 3 to 4 feet high, has wide-spreading branches, and blooms from the middle of July till frost sets in, the flowers white, tinged with mauve; from 4 to 6 inches across, showy and sweet, but the leaves emit a disagreeable odour.

The plants hitherto known as Brugmansia are now considered to belong to Datura. They are of easy cultivation, and soon make large plants. The best way of growing is as standards, so that their long drooping flowers may be better seen. In the flower garden a sheltered but sunny position should be chosen. The plants may be safely put out about the end of May in good warm soil. When in a house, either in tubs or in the border, an annual pruning should be given early in the spring, and they should be kept within bounds. Under glass the chief enemy is green fly, but fumigation soon disposes of this. The propagation of these plants is simple, the young shoots being

merely taken off in spring and struck in a gentle heat, one cutting in a small pot. Grow them on as fast as possible, keeping them to the one stem until of good height. They will yield a few flowers the first autumn when planted out, but as they get older they flower more profusely. *D. suaveolens*, another good white variety, is a profuse bloomer, its flowers being perhaps larger than those of *D. cornigera*, but single. *D. sanguinea* has flowers of a deep orange-yellow tinged with green towards the base; it does not flower quite so freely as the white kinds, but should be grown for its distinct character.

D. cornigera (Brugmansia Knighti) in the flower garden.

DAVIDIA INVOLUCRATA (*Bract Tree*).—A remarkable tree from the mountains of C. China, where the winters are severe, it has proved hardy in this country. It belongs to the Dogwood family, and the large white bracts are more showy than the flowers. It is described by Dr Henry as a large tree, bearing thousands of flowers, which are most peculiar. Inside a pair of white bracts about the size of the hand is a head of red-anthered stamens, and a tree in full flower is a marvellous sight, owing to the alternate white and green caused by the large bracts intermingling with the leaves. Its value for our islands is known, and a subject of such ornament and distinction merits the best positions among the choice trees and shrubs.

DECAISNEA. — Curious ailantus-like shrubs, natives of mountain woods, China, and India ; as yet little known in our country, but deserving of a place as soon as they can be obtained, among rare and beautiful shrubs. The leaves of *D. Fargesi* are pinnate and the flowers not showy, but the fruits become an attractive blue in autumn. Until more common, cultivate in open free soil and sheltered places.

DECUMARIA.—Two species of this interesting genus are in cultivation ; both are hardy, and useful climbers for walls and buildings. *D. barbara*, a native of Carolina, where it is found in shady places along the margins of swamps, is a very elegant plant. The branches cling to the wall by small rootlets, as in the Ivy, and when allowed to ramble at will are very grotesque, ascending trees or walls to a considerable height, and requiring no nailing and little attention. The flowers are in large bunches in May and June, pure white and fragrant, resembling Hydrangea. *D. sinensis* is a native of C. China, and a beautiful hardy species. It is a climber, and was found by Dr Henry covering the cliffs of the Ichang Gorge with clusters of fragrant white flowers.

DEINANTHE CŒRULEA.—An interesting Chinese plant of herbaceous habit, when happy growing to 2 feet in height and over. Large veined cordate leaves, amongst which nestle the double round flowers of a delicate light saxe-blue colour. It is somewhat precocious to grow, and the sun must not reach the leaves, which are easily scorched and checked, but it delights in surrounding warmth, and requires moisture when growth starts in the spring and throughout the summer. Place it in leaf-mould, peat, and good garden soil mixed together, as it is a hungry plant. It is worthy of care and attention.

DELPHINIUM (*Larkspur*). — Few plants contribute so much to the beauty of the garden as these fine plants of the Crowfoot order. There are in cultivation many species, both annual and perennial, but the most important are the tall hybrid perennials, of which there are many varieties with a wonderful range of lovely colour. They are very valuable for their great variety in height, from 1 to 10 feet ; for their greater variety in shades of colour, which range from almost scarlet to pure white, from the palest and most chaste lavender up through every conceivable shade of blue to deep indigo ; and for the variety of size and form of their individual blooms, some of which are single, some semi-double, and some perfectly double, and all set on spikes ranging from 1 to 6 feet in length.

Perennial Larkspurs thrive in almost any situation or soil ; they are easily increased, and are quite hardy. A deep, friable loam, enriched with rotten manure, is a good soil for them, but they will grow well in a hot sandy soil if it be heavily manured and watered. Every three or four years they should be replanted and divided, preferably in spring, just as they are starting into growth, or in summer ; if it is done in summer, cut down the plants intended for division, and let them remain for a fortnight after flowering until they start afresh ; then carefully divide and replant them, shading and watering until they are established. Late autumn division is not advisable. Delphiniums can be made to bloom for several months by continually cutting off the spikes immediately after they have done flowering. If the central spike be removed, the side shoots will flower, and by thus cutting off the old flowers before they form seeds we cause fresh shoots to issue from the base, and to keep up a succession of bloom.

The following is a selection of the good kinds :—*Belladonna grandiflora*, Blue King, Capri, China Blue, *Conspicua*, *formosum*, *Lamatino*, *Mœrheimi* (valuable pure white), Mr J. S. Brunton, Persimmon, Queen Mary, *Twertonia*, and Royal Blue. *Double Varieties*.—Ampere, Col. Sir Wyndham Murray, Chantry Queen, Dusky Monarch, Elsie, Harry Smetham, James W. Kelway, King of Delphiniums, Lavanda, Le Danube, Lizzie Van Veen, Monarch of All, Mrs A. J. Watson, Mrs Colin M'Iver, Mrs H. Kaye, Mrs Shirley, Perfection, Queen Wilhelmina, Robert Cox, Rev. E. Lacelles, Statuaire Rude, The Alake, Willy O'Breen, Walter T. Ware. The beautiful old double variety *D. grandiflorum fl.-pl.* is one of the most charming of border plants.

The best of the numerous perennial species distinct from the hybrids are : *D. cashmerianum*, with flowers nearly as large as those of *D. formosum*, and with stems about 15 inches in height. *D. cashmerianum* is well suited for the

border or for a large rockery ; in either case perfect drainage is essential, and this is best attained in rock garden culture. Its branches have a prostrate habit, apparently adapting it to such conditions. It is best increased from seed. *D. cardinale* is a beautiful species of tall growth, having bright

Delphinium.

scarlet flowers, like those of *D. nudicaule*. It blossoms later in summer, and continues longer in flower than *D. nudicaule*, owing in part to its slower development. It is a most desirable plant, and as hardy as *D. nudicaule*. Seedlings will probably not flower till the second season. In very damp soil it would be prudent in winter to protect the root with a hand-light or inverted pot. *D. chinense* is distinct from other Larkspurs, and is neat and rather dwarf in growth, having finely cut feathery foliage, and freely producing spikes of large blossoms, usually of a rich blue-purple, but sometimes white. It is a good perennial, is easily raised from seed, and continues to flower throughout the summer till late in autumn. It is suited for borders and beds. *D. nudicaule* has scarlet blossoms, a dwarf, compact, branching growth, a hardy constitution, and a free blooming habit, 1 to 3 feet high. The flowers are in loose spikes, each blossom being about 1 inch in length ; the colour varies from light scarlet to a shade verging closely on crimson, and when seen in the open air, especially in sunshine, dazzles the eye by its brilliancy. *D. nudicaule* is perfectly hardy, and commences growth so early that it may almost be termed a spring flower, but it may be had in bloom during several of the summer months, and is handsome for warm borders. Although somewhat apt to damp off on level ground, it is a perennial on raised ground, and keeps up a succession of bloom. Seed.

The Annual Larkspurs.—In these hardy annuals there is also a wealth of beauty for the summer garden, and we have a host of beautiful sorts with a wide range of colour. There is great diversity, too, in the habit of growth, some being as dwarf as a Hyacinth, others 3 or 4½ feet high, others with a branching habit resembling a candelabrum. The species which have given rise to these varieties are *D. Ajacis* (Rocket Larkspur) and *D. Consolida*. *D. Ajacis* has the flowers in long, loose spikes forming an erect and spreading panicle, the stem vigorous with open spreading branches. All the varieties of the Rocket Larkspur may be arranged in three great groups :—(1) *D. Ajacis majus* (large Larkspur).—The stem of this is single, and varies in height, from 3 to 4 feet 6 inches ; the flowers double, in a long, single, and compact spike, generally rounded off at the extremity. This kind has given the following varieties—white-flesh-coloured, rose, mauve, or puce-coloured, pale violet, violet, ash-coloured, claret, and brown. (2) *D. Ajacis minus* (dwarf Larkspur).—The stem of this is from 20 to 24 inches in height, and is even shorter when the plant is sown thickly or in dry or poor soils. The flowers are very double, and in a single well-furnished spike, usually cylindrical, and rounded off at the extremity, but rarely tapering.

The principal varieties are—white, mother-of-pearl, flesh colour, rose, mauve, pale mauve, peach blossom, light violet, violet, blue-violet, pale blue, ash-grey, brown, light brown, white striped with rose, white striped with grey, rose and white, and flax-coloured and white. (3) *D. Ajacis hyacinthiflorum* (dwarf Hyacinth-flowered Larkspur).—The varieties of this group have been raised in Belgium and Germany. They do not differ from other kinds in form of flower, but only in the spike on which the flowers are set, being more tapering, and the flowers farther apart than those of the two previously mentioned groups. There is a strain called the tall Hyacinth Larkspur. Other strains mentioned in catalogues are the Ranunculus-flowered (*ranunculiflorum*) and the Stock-flowered, both of which are worth cultivating.

D. Consolida (branched Larkspur).—This species has branching stems and beautiful violet-blue flowers hung on slender stalks, and coming later than those of *D. Ajacis*. It embraces several varieties, both single and double, all of which may be reproduced from seed. The principal sorts are white, flesh colour, red, lilac, violet, flaxen, and variegated. The varieties especially worthy of cultivation are candelabrum, bearing pyramidal spikes of flowers of various colours; and the Emperor varieties, of symmetrical bushy habit, which form compact and well-proportioned specimens, 1½ feet high by 3½ feet in circumference, doubleness of flowers possessing great constancy. There are three colours—viz., dark blue, tri-coloured, and red-striped. In *D. tricolor elegans* the flowers are rose-coloured, streaked with blue or purple, and about 3 feet high.

Annual Larkspurs should be sown where they are to remain at any time after February when the weather permits — usually in March and April. They may also be sown in September and October, and even later when the ground is not frozen, but the produce of winter sowing is liable to be devoured by slugs and grubs. The sowing may be made either broadcast or in rows 4 inches to 8 inches apart, and the plants should stand 4 inches or 5 inches asunder. The branching varieties may be sown in reserve beds, and in March when about 12 inches or 16 inches high should be transferred to the flower-beds, lifted carefully with balls of earth round the roots, so that they may not suffer. These branching varieties are well suited for the garden, either in masses of one colour or of various colours. They may be planted in borders or among shrubs thinly planted. Azure Fairy and Blue Butterfly are very beautiful sorts. Larkspurs are at their best in June and July. Sown in March, a succession is obtained into September.

DENDROMECON RIGIDUM (*Shrubby Poppy*).—A handsome half-shrubby plant bearing yellow flowers and glaucous grey leaves; a little tender, and one that requires a warm wall and some protection in winter. In the extreme south it may thrive in the open. Best in free, warm loam. California. Seeds are not abundantly produced, but the plants may be increased from cuttings of half-matured shoots in summer, but it often perishes, and seeds should give the most enduring plants.

DESFONTAINEA.—In favoured gardens along the southern coast, and in other mild parts, *D. spinosa*, a very beautiful evergreen shrub from Chili, can be grown and flowered out of doors. It is of moderate growth, having foliage very much like the Holly, and handsome flowers in the form of a tube of bright scarlet tipped with yellow. It usually flowers about the end of summer, and in some parts, as at Abbotsbury and in Devonshire, it blooms profusely, thriving in a light loamy soil, and even round the coasts as far as the north of Ireland, but once a few miles from the protection of the sea air it ceases to thrive, and is therefore only of most value on seashore or hill districts.

DESMODIUM (*Tick Trefoil*). — A few of the N. American species are cultivated, but their weedy appearance prevents their general culture. These are *D. canadense*, *marilandicum*, and *Dilleni*, all from 2 to 4 feet high, with slender stems, terminated by dense racemes of small purplish flowers. *D. penduliflorum* is a really pretty shrub, and hardy if the stems are annually cut down, with graceful shoots, bearing along their upper portions numerous rich violet-purple blossoms in September. It is the name by which the beautiful Lespedeza bicolor is generally known. It is a slender shrub, graceful when in flower, 6 feet or more in height, bearing drooping racemes of

small Pea-shaped flowers of a carmine-purple colour. China and Japan.

DEUTZIA.—Hardy, summer-leafing shrubs of high value for the garden, requiring no special attention, and of varied character, owing to hybrids having been raised by M. Lemoine and others, and species newly introduced from China. These shrubs deserve a better fate than that of the common shrubbery, mixed up with all sorts of things of different natures and sizes, and should be grouped by themselves. They thrive in ordinary soils, and when pruned should not be reduced to mopheadedness by cutting back, but only old and exhausted wood should be cut out, the natural forms of the plants being kept. It is better not to prune at all than to hack them into ugly shapes. They ought to have a good position among choice shrubs on banks or on masses.

D. CORYMBIFLORA.—Forms a shrub from 4 to 5 feet high, the young shoots erect and clothed with bronzy-green bark. The mature growths of the previous year carry massive clusters of white flowers, with often from 50 to 100 buds, and expanded blooms opening in summer. Though a promising shrub in some parts of France, it in this country appears to be too tender to prove valuable. This is the *D. corymbosa* of gardens, and *D. setchuensis* of Franchet. China.

D. CRENATA.—Reaches a height of 6 to 10 feet, the flowers in erect thyrses, each flower composed of five pointed petals. Chief among its varieties are *D. crenata, flore punices*, whose double white flowers are shaded with rosy-purple on the exterior; *alba plena, candidissima plena*, and Pride of Rochester, for the three are almost, if not quite, identical; *Watereri*, white, flushed with rosy-lilac on the outside; and *Wellsii*, a double white flower, but in habit quite different from the other white forms.

D. DISCOLOR.—The true plant is a charming little shrub with arching, wand-like shoots of 2 to 3 feet, crowded from base to tip with clusters of rose-flushed white flowers, each three-quarters of an inch across. At present a rare plant, *D. discolor* is represented in our gardens by the variety *purpurascens*, which is a more vigorous plant than the wild form, reaching a height of 3 to 4 feet, with slender rounded stems of a bronzy-green or red colour, covered with little starry scales. The flowers, six to eight in a cluster, are rosy-purple on the outside, showing within as a pretty flush; the buds are of a carmine tint.

D. DISCOLOR FLORIBUNDA.—The other parent of this was *D. gracilis*, but it shows more of the influence of *D. discolor*. It forms a somewhat erect-growing little shrub that flowers freely; the blossoms in erect panicles, white, with a rosy flush on the outer petals and buds.

D. DISCOLOR GRANDIFLORA.—In this the influence of *D. gracilis* is shown in the long leaves borne upon stiffly erect shoots. The flower panicles are longer than in *D. purpurascens*, and the rosy-tinted flowers themselves larger, covering the stems throughout their length.

D. GRACILIS.—Between this and *D. discolor purpurascens*, M. Lemoine has raised a number of hybrids, two of which have been just dealt with. The following, however, of the same parentage, are so much more nearly related to *D. gracilis* that they may well be regarded as varieties of that well-known species.

D. GRACILIS CAMPANULATA.—This is taller than the others of its class, and bears long sprays of large milk-white flowers, which are bell-shaped and borne on dark coloured stems.

D. GRACILIS ROSEA.—A dense shrub a yard or more in height, hardy, and free-flowering. Its growth is erect, with small narrow leaves, and upright sprays of open bell-shaped flowers, rosy-grey on the outside and soft carmine within.

D. KALMÆFLORA.—A hybrid 3 to 4 feet high, flowering towards the end of May in spreading clusters of a pale silvery-rose colour, deepening towards the edges of the waved petals. The outside of the petals and the buds are of a bright rose-lake tint, while the peculiarity to which the plant owes its name is the ring of petal-like stamens forming a raised disc in the centre of the flower.

D. LEMOINEI APPLE BLOSSOM.—An erect shrub, 2 feet high, laden with rounded clusters of twenty to thirty flowers, springing erect from every joint. The petals fold back prettily, with margins fringed and waved, passing from rose in the bud to blush-pink, becoming white when fully expanded.

D. LEMOINEI AVALANCHE.—In this the stems are densely clothed with small dark green leaves and a profusion of crowded flower clusters, whose weight causes the stems to arch over in a pleasing manner. The flowers are of medium size, and it is hardy.

D. LEMOINEI ROSEBALL.—A counterpart of the last, save in the flowers, which, opening towards the end of May, are of a blush-pink with yellow stamens, the red flush deepening at the edges and on the outside of the petals.

D. LEMOINEI SNOWBALL.—Nearer to *D. parviflora* than its other parent, the flowers of this are mostly borne at the tips of the branches in compact rounded heads. Individually they are of great substance, with wavy petals, and in colour

creamy-white, relieved by stamens and disc of pale yellow.

D. LONGIFOLIA.—One of the new Chinese species, and, like all the Deutzias, very free-flowering. The shoots are disposed in a graceful arching manner, and the flowers, which are borne in rounded clusters, are of a pretty blush-mauve tint when first expanded, but afterwards become almost white. The central cluster of yellow stamens forms a noticeable feature. It is said to force well.

D. MYRIANTHA.—The massive flower clusters of this open early in June, the blooms each three-quarters of an inch wide and of snowy whiteness, save for the pale yellow stamens. From the period at which it flowers this forms a valuable succession to those just named, while, in addition, it is perfectly hardy.

D. PARVIFLORA.—This species, which has played a part in the production of some of the varieties above named, is in itself a handsome shrub of 4 to 5 feet, its erect stems being crowned in spring by flattened clusters of flowers, suggestive of those of the Hawthorn. The manner in which the bark peels away in bands from the older stems is characteristic of this kind. It flowers in April and May, and it is by no means proof against spring frosts.

D. SCABRA.—To M. Lemoine we owe the reintroduction of this scarce shrub, the true *D. scabra*, a name often erroneously applied in gardens to *D. crenata*. The true *D. scabra*, which is from Japan, flowers about the middle of May, and is sometimes injured by late frosts. The shrub itself is a rather loose grower, while the flowers borne in spike-like clusters are each about half an inch across, and of snowy whiteness with yellow stamens.

Deutzia parviflora.

D. VEITCHI.—A very promising Deutzia, whose flowers, borne very freely, are of a deep pink when fully expanded, but rich rose in the bud state. About an inch across, with a central cluster of yellow stamens. It appears to be later in blooming than some of the other Deutzias, and should prove of considerable value to the hybridist.

D. VILMORINÆ.—A new kind of considerable promise, native of China. It bids fair to attain a height of 5 to 6 feet, while the flowers, at their best in the early part of June, are disposed 20 to 35 together in large clusters, which, at first erect,

become afterwards, from their weight, partially drooping. This, though charming from the graceful habit of the plant and its bloom, has yet to be tested as to its value in the open air in this country.

D. WILSONI.—A handsome shrub from W. China, introduced by Wilson in 1901. The large flowers are white and borne in corymbose panicles. The leaves, 4 to 5 inches long, are ovate oblong, dull green above and grey beneath.

DIANTHUS (*Pink*). — Plants of the highest garden value, containing several of our finest families of hardy flowers—the Carnation, Pink, and Sweet William — besides numerous alpine and rock plants that are among the most charming of mountain plants. Many of the species are plants of the heath, dry meadow, or Maritime Alps; or shore plants, such as the Fringed Pink (*D. superbus*); and, so far as our climate is concerned, they are almost at home in lowland gardens. On the other hand, some are among the very highest alpine plants, like the Glacier Pink and the Alpine Pink.

The following is a selection of the best species for gardens:—

D. ALPINUS (Alpine Pink).—A beautiful and distinct plant, distinguished at a glance from any other cultivated Pink by blunt-pointed, shining green leaves. The stems bear in summer solitary circular flowers of deep rose spotted with crimson, and when the plant is in good health they are so numerous as to hide the leaves. In poor, moist, and very sandy loam this Pink thrives, and forms a dwarf carpet, though the flower-stems are little more than 1 inch in height; but both leaves and stems are much more vigorous and tall in deep, moist, peaty soil. Wireworms cause its death more frequently than unsuitable soil. It should be placed in a fully exposed spot, and carefully guarded against drought, especially when recently planted. It is not difficult to increase from seed, and it comes true; and it may be also increased by division. Alps of Austria.

D. BARBATUS (Sweet William).—One of the most admired of garden flowers, hardy and vigorous, with a profusion of bright flowers.

The Sweet William has been greatly improved of late years. The colours vary, and they may be classed under two heads—dark and light kinds. Of the latter there is a strain known as the Auricula-eyed, the blooms of which have a clear white eye in a setting of red or purple, or some other rich dark colour. The finest strain is usually found where year after year care has been exercised in selecting only the finest flowers, with the largest trusses and most various markings. The only self-coloured flowers are those of pure white, pink, or crimson; all the others are parti-coloured or variously marked, some very prettily mottled, others more or less edged with white or pale pink.

Their culture is very simple. Sow the seed in April, in a well-prepared bed in a sunny spot, transplanting when they are large enough, about 6 inches apart, in good soil. About the end of September transplant them to their permanent quarters, and in the following summer they will bloom. Plant out in light loam, dressed only

Dianthus alpinus (Alpine Pink).

with a little leaf-mould or loam from rotted turfs, placing the seedlings so that a few of the lower joints are under the soil. Sweet Williams may also be propagated by cuttings taken off in early summer, but good kinds from seed are best; for the main stems, which should rise for bloom, creep along the ground, and throw up from every joint shoots suitable for cuttings; and a little sheaf of cuttings may be taken from the tips of the main stems, so that each plant would furnish over a hundred cuttings.

Double-flowered kinds, as a rule, are not desirable, except the double dwarf *magnificus*, the deep velvety crimson flowers of which are the finest among the double kinds: the large heads of flower are numerous, the colour is rich

and effective, it is a dwarf, vigorous grower, and soon forms a strong tuft. The Sweet William is easily naturalised in woods or copses by simply scattering the seed in barish spots, using any single kinds.

D. CÆSIUS (Cheddar Pink).—One of the prettiest of the dwarf Pinks, the fragrant and rosy flowers appearing in spring, on stems 6 inches high. In winter it perishes in the ordinary border, while quite happy on an old wall. It is a native of Europe and Britain (the rocks at Cheddar, in Somersetshire). To establish it on the top or any part of an old wall, sow the seeds on the wall in a little cushion of Moss, if such exists, or, if not, place a little earth in a chink with the seed, and it may also be grown upon the rock garden in firm, calcareous, or gritty earth, placed in a chink between two small rocks.

D. FREYNII (Microlepsis), from Hungary, is a minute-growing kind of 2 inches high; the flowers are pink. Suited for rock walls, crevices, or the moraine.

D. SUB-ACAULIS.—Also a minute-growing species having glaucous tufts an inch high, covered in its day with pale pink flowers. Dauphine.

D. CARYOPHYLLUS (Carnation).—This beautiful flower, so much loved in all countries where it can be grown, both under glass and in the open air, is derived from a wild Dianthus of W. Europe and the Alps, which, as regards our own country, is wild on Norman castles such as Rochester. From very early days it seems to have been a favourite flower, as in Dutch pictures nearly three hundred years old the Carnation, mostly in its striped forms, is shown in perfection. At a very early date the Carnation was divided into four classes, viz., Flakes, Bizarres, Picotees, and Painted Ladies. The Flakes had two colours only, the stripes going the whole length of the petals. Bizarres (from the French, meaning odd or irregular) were spotted or striped with three distinct colours. Picotees (from the French *piquoté*) had a white ground with additional colours in spots, giving the flowers the appearance of being dusted with colour. Painted Ladies had the under side of the petals white and the upper side red or purple, so laid on as to appear as if really painted. Unfortunately this class has so entirely disappeared that many growers are not aware that it ever existed. The first two classes still remain unchanged; but the Picotee, instead of being spotted, has the colours confined to the edge of the petals, and any spot on the ground colour (which may be either white or yellow) would detract from the merits of the flower as an exhibition flower.

Another class, too long neglected, consists of self-coloured kinds. A familiar type is the old Crimson Clove, a sweet and lovely thing, which may be had also in several different shades of self-colour. The florists of the old school did not pay much attention to self-coloured Carnations, and till recently there was a scarcity of fine varieties. We may now have them in all shades of colour. They combine hardiness and vigour with free blooming and great effect. For the flower garden they are the most important. They should be grown in bold groups or simple masses associated with Roses or choice hardy flowers.

The Tree or perpetual flowering Carnation is valuable as a pot plant; or, if planted out in a greenhouse border, it produces flowers in winter and spring, when none can be had out of doors. The most popular of this class is Souvenir de la Malmaison, with large cream-coloured blossoms and delightful fragrance, and from this have been obtained many new and beautiful colours; so that, with these and other varieties, there is now no difficulty in obtaining all colours, from pure white to bright scarlet.

The soil has a marked influence upon Carnations. In very light, hot soils, as in Surrey, they cannot be grown well at all. They want a loamy soil, calcareous loams being the best. In these they make a harder growth, and stand two or more years, spreading into great tufts and bushes.

CULTURE FOR BEDS AND BORDERS.—For this purpose no type of plant surpasses well-rooted layers. To obtain these the layering must be done in July, when the young plants will be ready for their permanent quarters by the end of September. At that season the soil is usually warm and in good condition, and the plants quickly take to their new positions. Planting must be firmly done, and the plants bedded in the soil right up to the lowest leaves. Chalky and calcareous loams are the best, and where these are not at hand ceiling plaster or old mortar rubble may be added freely to the soil. Air-slaked lime may also be added to such soils with decided advantage. Whilst the Carnation prefers a soil of moderate richness, the excessive use of manure is abhorrent to it. Where from any cause September planting is not possible, the layers should be potted and kept in an airy frame for the winter, bedding them out in March. In such a case, however, the ground should

be prepared and treated as suggested above during the winter season. In certain instances Carnations so treated may remain in position for two years *without layering*, when they afford a magnificent display of flowers.

Some thousands of these flowers were grown for years at Gravetye in the open, and while the result was often beautiful, our cold retentive soil never gave the same growth as one finds on the chalk hills, on the warm limestone soils of Ireland, or on the satiny loam round Edinburgh. In wet winters the plants, on our soil, became gouty. After many years of labour in layering and planting, the attempt to grow named varieties in the usual way was abandoned, and the plan was adopted of raising seedlings, the Carnation being thus treated practically as a biennial. Unquestionably more vigorous plants and more abundant and continuous bloom are obtained by raising the Carnation from seed, though the average quality of bloom may not equal that of selected and named varieties. It might be found advisable to substitute the stronger-growing Pinks, which are bright in colour and fragrant, and less liable to decay in damp winters than the Carnation. Both the Carnation and the Pink, from the beauty and sweetness of their bloom and the cheerful effect of their foliage in winter, are well deserving of cultivation in all gardens where soil and climate suit these flowers. Our mild and moist southern winters are really less favourable to the cultivation of the Carnation than the more rigorous winter of the north, where a covering of snow secures for the flower a complete period of rest. It is damp and not cold that tries the constitution of the Carnation in winter.

Seedling Raising.—It is a fascinating pursuit, albeit the number of high-class novelties obtained is relatively small. It may be, however, that quite half the number of those rejected may be of merit, and not a few of them equal to many already bearing distinctive names. A layered plant gives but one flowering stem each year. A well-grown perpetual sort may give a dozen or more, while the correctly grown seedling plant, when sixteen months old, will easily produce a sheaf of fifty flowering stems, and often twice that number. It is true that, unless the plants are generously cultivated, many flowers will not be high class; but even so, the magnitude of the display is beyond dispute, just as the wealth of the flowers and their fragrance would be unparalleled. To achieve such results, sow the seeds in a greenhouse temperature in February or March, using light sandy soil. Pot them singly in 3-inch pots when large enough, and in May plant out in well-cultivated ground 1½ or 2 feet apart. Beyond the usual cultural needs, nothing more will be required. A few of the more precocious may attempt to flower the same autumn, but the flowering spike should be removed as soon as seen, the object being to provide for a big display in the ensuing summer. From a high-class strain, 80 per cent. will give double flowers, a well-flowered bed constituting a fine feature in any garden.

Allwoodii (The New Perpetual Flowering Pinks).—"This new race of border plants is a cross between the Perpetual Carnation and Pink. The flowers grow profusely on long stiff stems during summer and autumn, and are delightfully perfumed."

This was cut out the *Times* advertisements. It is a false name, there is no such plant, and I have never seen a hybrid between the Carnation (*D. caryphyllus*) and the Pink (*D. plumarius*). These plants vary to no end, and I have grown thousands of them in my garden for years and never saw even a trace of a hybrid between them. It is not only the fraud on the buyer in selling a plant as new, which has been grown in our own isles for centuries; it is lessening the value of one of our best hardy plants. I wrote to the advertiser and to the Secretary of the Royal Horticultural Society, telling them the fact, but no notice was taken, so I state the truth here. Another evil result of such practice is the confusion in the minds of children and other beginners of names without real meaning.

Layers.—This is the best and most generally accepted method of propagating Carnations and Picotees. It should be commenced at latest the last week in July, and finished by the second week in August. It is performed as follows:—Scrape away the earth round the plant to the depth of 2 inches, and substitute for the earth removed the compost prescribed. Strip each shoot up to the top three or four joints, going all round the

plant before proceeding farther. Then with a sharp knife cut half through a shoot, just below a joint, make a slanting cut up through the joint, and bring the knife out just above it; take a peg with a hook in it and thrust it into the fresh compost just above the tongue, so that as the peg comes down it will catch the tongue and peg it into the earth. Cover it with a little more compost placed firmly. Proceed thus all round the plant, finally watering carefully with a fine rose waterpot to settle the soil around the layers. In about a month the layers will be rooted, and by the second week in October all the young plants ought to be in their winter quarters.

Several diseases affect Carnations. Two of the worst are fungoid growths. One of these is a fungus which grows between the membranes of the leaf, and the only method of destroying it is to pick off and burn every infected leaf. It appears at first as a small blister which bursts, scattering its spores and leaving a dark brown scar. A more familiar disease is that known as spot; a damp atmosphere or overcrowding of the plants being the causes. It spreads rapidly, but some kinds enjoy a complete immunity from it. Dusting the plants two or three times with a mixture of soot and sulphur has been found effectual. The gout is a swelling of the stem close to the surface of the ground, which eventually bursts, supposed to be caused by little worms which eat their way into the collar of the plant and lay eggs there which hatch worms that feed upon and eventually kill the plant. The maggot is a small insect with great powers for mischief. It comes from an egg laid no doubt in the skin or tissues of the leaf, and eating its way under the skin of the leaf, makes a home in the main stem of the plant, eating out the centre and killing it. The only remedy appears to be diligently searching for and hunting it out before it has traversed the leaf. By spraying with quassia and soft soap the plants are made better and distasteful to the pest, which is deterred from depositing eggs on the plants. Wire-worm is a pest to be reckoned with, but usually only gives trouble in fresh soil. Spittle-fly, which appears when the flower-spikes are growing, must be destroyed, or it will do serious harm. An open situation and a well-drained soil are conditions unfavourable to the spot diseases, whilst rotation

Dianthus neglectus (Glacier Pink).

in planting keeps the stock free from the worm pests and maggots.

D. DELTOIDES (Maiden Pink).—A pretty native plant, with bright pink-spotted or white flowers, on stems from 6 to 12 inches long. It grows almost anywhere, in borders or on rockwork; does not so much suffer from wire-worm. It may be readily raised from seed, and is easily increased by division. The variety *glauca* has white flowers with a pink eye. It is abundant on Arthur's Seat, near Edinburgh, and forms a charming contrast to the crimson kind.

D. DENTOSUS (Amoor Pink).—A distinct and pretty dwarf Pink, with violet lilac flowers, more than 1 inch across, the margins toothed, and the base of each petal having a regular dark violet spot, which forms a dark "eye" nearly ½ inch across in the centre of the flower. The plant flowers from May or June till autumn, and thrives in sandy soil, in borders, or on rockwood. Seed. S. Russia.

D. NEGLECTUS (Glacier Pink).—A brilliant alpine plant, forming, very close to the ground, tufts like short wiry grass, from which spring many flowers, 1 inch across, and of bright rose. It grows freely in very sandy loam, either in pots or on the rock garden, rooting into the sand through the bottom of the pots as freely as any weed, is hardy, easily grown, and best increased from seed. Alps and Pyrenees. Syn. *D. glacialis*.

D. PETRÆUS (Rock Pink).—A charming Pink, forming hard tufts, 1 or 2 inches high, from which spring numerous flower-stems, each bearing a fine rose-coloured flower. It seems to escape the attacks of wire-worm. It flowers in summer, and should be planted on the rock garden in sandy and rather poor moist loam. Hungary. Seed or division.

D. PLUMARIUS (The Common Pink).—This is the parent of our numerous varieties of Pinks, and has single purple flowers, rather deeply cut at the margin, and is naturalised on old walls in various parts of England. The wild plant is rather handsome when grown in healthy tufts, but on the level ground it is apt to perish. The many fragrant double varieties are welcome everywhere, and should be cultivated as rock or bank plants, as they live longer and thrive better when raised above the general level of the ground, though they grow well in ordinary soil. They have for many years been amongst the favourite "florists'" flowers in European countries, and are hardier and dwarfer than the Carnation. In August, Pinks should be planted 9 inches apart, the ground being rich and well prepared. If the winter be very severe, a little litter should be put over them, and in spring the surface of the beds should be stirred a little and given a top-dressing of fine old manure and a slight dusting of guano. The culture of Pinks for the garden is simple, and the outlay small. Get newly struck pipings in August and September—the best months to plant them in a sunny place.

All the garden or border Pinks are best increased by means of pipings. The latter half of June and early July is *the* best time.

D. SINENSIS (Chinese Pink).—This has given rise to a race of beautiful garden flowers. It is an annual, or biennial, according to the way it is sown and grown. If sown early the plants will flower the first year; if late, the second. On dry soils, and if the winters be mild, they will live for two or three years. The varieties, both single and double, are now very numerous and beautiful, and may be classed under *D. Heddewigi* and *D. laciniatus*. The forms of *Heddewigi*, the Japanese variety, are dwarf and handsome, while there are double-flowered forms, particularly *diadematus*, the flowers of which are large and very double. The petals of the laciniated section are very deeply cut into a fine fringe. Of this class there are also double-flowered forms. The colours of both are much varied, and there are striped crimson and white sorts.

D. SUPERBUS (Fringed Pink).—A fragrant wild Pink, easily known by its petals being cut into strips for more than half their length. It inhabits many parts of Europe from Norway to the Pyrenees, and is a true perennial, though it perishes so often in gardens that many regard it as a biennial. It is more likely to perish in winter on rich and moist soil than on poor and light soil, and when it is desired to establish it as a perennial, it should be planted in fibry loam, well mixed with sand or grit.

DIAPENSIA (*D. lapponica*) is a sturdy and dwarf evergreen alpine shrub, often under 2 inches in height, growing in dense rounded tufts, having narrow, closely-packed leaves, and bearing in summer solitary white flowers about half an inch across. It may be grown well on fully exposed spots on the rock garden, in deep, sandy, and stony peat which is kept well moistened during the warm season. N. Europe and N. America, on high mountains or in Arctic latitudes.

DIASCIA.—A pretty group of herbs from S. Africa, allied to Alonsoa. The only kind in cultivation is *D. Barbaræ*, a neat annual 9 to 12 inches high, with square stems and small wedge-shaped leaves. Raised in heat in spring and planted out in May, it

flowers until late autumn, the soft coral-pink flowers with two spurs. Though mostly treated as a half-hardy annual, the roots are perennial in the warm soils of southern gardens, spreading by stolons into handsome tufts. Seeds.

DICENTRA (*Bleeding Heart*).—Graceful plants of the Fumitory order, including about half a dozen cultivated species, of which the finest are :—

D. CHRYSANTHA.—This handsome plant forms a spreading tuft of rigid glaucous foliage, from which arises a stiff leafy stem, 3 to 4 feet high, with long branching panicles of bright golden-yellow blossoms, about 1 inch long in August and September. It seems hardy in light rich soil if warm and sheltered. Seed. California.

D. CUCULLARIA (Dutchman's-breeches) and *D. thalictrifolia* are less important, and rather belong to the curious garden.

D. EXIMIA combines a Fern-like grace with the flowering qualities of a good hardy perennial. From 1 to 1½ feet high, with numerous reddish-purple blossoms in long drooping racemes. It is useful for the rock garden and the mixed border, or for naturalising by woodland walks; thriving in rich sandy soil. Division. N. America.

D. FORMOSA is similar to the preceding, having also Fern-like foliage, but is dwarfer in growth, its racemes shorter and more crowded, and its flowers lighter. Suitable for same positions as *D. eximia*. California.

D. SPECTABILIS.—A beautiful plant, bearing singular flowers, resembling rosy hearts, and in strings of a dozen or more gracefully borne on slender stalks. It succeeds best in warm, light, rich soils, if in sheltered positions, being liable to be cut down by late spring frosts. It is, moreover, suited for the mixed border, but is of such remarkable beauty and grace that it may be used with the best effect near the lower flanks of rockwork, in bushy places near it. It is excellent for mixed borders, and for snug corners on the fringes of choice shrubs in peat. Division in autumn.

DICKSONIA (*D. antarctica*).—A noble evergreen Tree Fern, having a stout trunk, 30 feet high or more, the fronds forming a magnificent crown, often 20 to 30 feet across. They are from 6 to 20 feet long, becoming pendulous with age. It is the hardiest of Tree Ferns, and the most suitable for the open air, in sheltered shady dells. From the end of May to October. In favourable localities it may even be left out all the winter.

D. PUNCTILOBULA.—A beautiful hardy Fern found in shady woods and moist copses in N. America, from New Brunswick and Canada to the Central United States. Its graceful pale green fronds are 1 to 2 feet long and 5 to 9 inches broad, twice or thrice divided, and carried upon roots which creep just under the ground. The fronds are held very erect upon hairy stems, are soft in texture, and dry prettily in the autumn, when the tiny glands on the under surface give out a pleasing fragrance to which the plant owes its name of the Hay-scented Fern. It is hardy in Britain, thriving in peaty or leafy soils in partial shade.

DICTAMNUS (*Fraxinella*).—*D. Fraxinella* is a favourite old plant, about 2 feet high, forming dense tufts, flowers pale purple, and with darker lines (there is a white form) borne in racemes in June and July. This plant does best in a light soil. It is propagated by seeds sown as soon as they are ripe, or by its fleshy roots, which, if cut into pieces, in spring, will form good plants much quicker than seedlings. It is a slow-growing plant in most gardens, though it is freer in some warm soils, and a very long-lived plant where it likes the soil. It is at home in the sunny mixed border among medium-sized plants. Caucasian Mountains.

The Caucasian kind is a larger and more handsome form. There is also a white form *albus*.

DIETES.—Rather tall, graceful Iris-like plants. One kind only is known to be hardy in our country (*Huttoni*), which grows freely in my garden in ordinary soil at the foot of a west wall. S. Africa.

DIGITALIS (*Foxglove*).—The most important plant of this genus is our native Foxglove, the handsomest of the several species in cultivation.

D. PURPUREA (Foxglove).—Wild Foxgloves seldom differ in colour, but cultivated ones assume a variety of colours, including white, cream, rose, red, deep red, and other shades. The charm of these varieties, however, lies in their pretty throat-markings—spots and blotchings of deep purple and maroon, which make large flowers resemble those of a Gloxinia. The seed is small, and is best sown in pans or boxes, under glass, early in May. When the young plants are well up they should be placed out of doors to get thoroughly hardened before being finally planted out. In shrubbery borders varied clumps of several plants produce a finer effect than when set singly. The Foxglove frequently

blooms two years in succession; but it is always well to sow a little seed annually, and if there be any to spare, it may be scattered in woods or copses where it is desired to establish the plants.

DIMORPHOTHECA (*Cape Marigold*).—A hardy annual from the Cape, 18 inches to 2 feet high; the flowers of *D. pluvialis* are white and purplish-violet beneath, expanding in fine weather. Plants from spring-sown seed flower from July to September. It is a bold, free annual, thriving in any good soil and an effective ground plant with the larger flower garden subjects; alone, however, it is well worth growing.

DIOSPYROS (*Persimmon*).—Trees from China and Japan which, in our warm counties, appear to be hardy, but do not often produce fruits except in warm soils in the best conditions. One is a native of America, where the fruit is eaten. Others are natives of China.

DIOSTEA JUNCEA.—This rather uncommon shrub presents, when in flower, quite a pleasing appearance. At Glasnevin it forms a densely-branched shrub of about 10 feet high, with green twiggy branches sparingly clothed with tiny, green, ovate leaves. It is at its best towards the end of June, and at that time it carries myriads of sweetly fragrant tubular flowers. The flowers are quite small, being only about ¼ inch long, and are of a very pale lilac colour. It is quite hardy. Chili.

DIOTIS (*Sea Cotton-weed*).—*D. maritima* is a dwarf cottony herb, and sometimes used in the flower garden as an edging plant. It is apt to grow rather straggling, and to prevent this it is kept neatly pegged down and cut in well. It should have deep sandy soil. Native of our southern shores.

DIPELTA FLORIBUNDA.—Among the recent discoveries in China are four species of the interesting group called Dipelta. Allied to the Honeysuckles, they are distinct in their fruits, which have attached to them two shield-like discs of the same texture as the wings of Elm seeds. The blossoms are funnel-shaped, 1 inch to 1¼ inches long, dividing at the mouth into five rounded divisions and measuring there 1 inch across; they are pale pink, stained with yellow in the throat, and fragrant. It is deciduous and described as being 10 to 15 feet high in a wild state, the bark of the stem and older branches peeling off in thin flakes.

DIPHYLLEIA CYMOSA. — A perennial of the Barberry family, about 1 foot high, having large umbrella-like leaves in pairs. It flowers white, in loose clusters in summer, and succeeded by bluish-black berries. North America, on the borders of rivulets and on mountains, thriving in peat borders and fringes of beds of American plants in moist soil.

DIPLACUS GLUTINOSUS (*Shrubby Mimulus*). — A beautiful flowering shrub from California. In the south-west of Britain as hardy as a Fuchsia, starting away well every spring, free from insect pests, and with a long season of beauty. In many gardens, even as far north as Yorkshire, it may be grown well against a wall, and even if destroyed in a hard season increase is so easy that the loss is soon made good. Seed or cuttings.

DIPSACUS (*Teasel*).—Coarse-growing plants, annual or biennial, striking in form, in woods and hedgerows. There are three native species, *D. Fullonum, pilosus,* and *sylvestris;* the boldest kind is *D. laciniatus,* a European species growing 5 to 8 feet high, with large deeply-cut foliage. The seed may be sown in woody places and by freshly broken hedge-banks, where the plants will often perpetuate themselves.

DISANTHUS CERCIDIFOLIUS.—A native of Japan, and a near relative of the Witch Hazels. Like them, it is remarkable for the curious twisted petals of its weird-looking flowers. The most attractive period of this shrub is in the autumn, when the leaves assume a rich red-purplish hue. According to Professor Sargent, the colour of the flowers is dark purple, while the fruit resembles that of the Witch Hazels. He also says: "In the autumn colour of its leaves, Disanthus is one of the most beautiful shrubs I saw in Japan."

DISCARIA (*Wild Irishman*).—Spiny shrubs allied to Colletia and Ceanothus, and only hardy in the open in the more favoured parts of the south and south-west, though thriving against walls near London and farther north. *D. serratifolia* from Chili is a loosely branched shrub covered with stout

thorns an inch or more long and sharp as a needle. The small bell-shaped flowers are white, coming in pairs at the base of the spines. The leaves are very small. *D. toumaton*, from New Zealand, bears thorns almost at right angles with the stems, and the tiny leaves are more numerous. The flowers also, though much smaller, are in larger clusters and pretty when abundant as in a good season. Light loamy soil and a sunny sheltered spot are the best conditions. Increase by seed or layers.

DISTYLIUM.—Two species of small evergreen trees allied to the Witch Hazel, and much used for hedges in China and Japan. *D. racemosum* has recently been introduced and is probably hardy, but still on its trial in this country. The leaves are thick, leathery, and narrowly-oblong in shape, and in one kind prettily variegated. The flowers are small and devoid of petals, but described as glowing like red fringed buttons all along the stems in early spring. Seed.

DODECATHEON (*American Cowslip*).—Beautiful plants of the Primrose family; perennials from N. America. They are all hardy, requiring a cool situation and light loamy soil, but in some soils apt to perish. The nature of the soil is, however, of small importance, as they grow almost as freely in peat or leaf-mould as in loam; situation is the principal point. In borders where Primulas thrive, Dodecatheons will soon establish themselves. The best time for transplanting them is early autumn or the beginning of February, when the roots are becoming active. All may be easily raised from seed sown after ripening.

D. INTEGRIFOLIUM.—A lovely flower; the petals have a white base, and spring from a yellow and dark orange cup, the flowers deep rosy crimson, on stems from 4 to 6 inches high, in March. It is a native of the Rocky Mountains, and a choice plant for the rock garden, if planted in sandy peat or sandy loam with leaf-mould. Strong well-established plants produce abundance of seed, which should be sown soon after it is gathered. Careful division.

D. JEFFREYI.—A stout kind, more than 2 feet high in good soil, with larger and thicker leaves than *D. Meadia*, reddish midribs strong and conspicuous, and the flower somewhat larger and darker. *D. Jeffreyi* is a hardy and distinct plant, thriving best in light, rich, and deep loam, in a cool and sheltered spot, where its great leaves are not broken by high winds.

D. MEADIA (American Cowslip).—A graceful plant and a favourite among old border flowers, its slender stems from 10 to 16 inches high, bearing umbels of elegantly drooping flowers, the purplish petals springing up vertically from the pointed centre of the flowers, something like those of the greenhouse Cyclamen. It loves a rich light loam, and is one of the most suitable plants for the rock garden, for choice mixed borders, or for the fringes of beds of American plants.

DONDIA (*D. Epipactis*) is a singular little herb, 3 to 6 inches high, having small heads of greenish-yellow flowers in spring, and suitable for the rock garden, margins of borders, or banks; increased by division after flowering. Carinthia and Carniola.

DORONICUM (*Leopard's Bane*).—Showy plants of the order *Compositæ*, of which half a dozen species are in gardens, all of vigorous growth, flowering in spring, and thrive in any soil; they are therefore excellent for rough places, for naturalising, or for dry banks, where little else will thrive. All are readily increased by division of the roots. They range in height from 9 inches to 3 feet, and have large, bright yellow Daisy-like flowers. The best species are *D. austriacum* and *caucasicum*. Other kinds are *D. Clusi*, *carpetanum*, *Columnæ*, *Pardalianches*, and *plantagineum*, all natives of Europe. *D. plantagineum* var. *excelsum* (syn., *Harper Crewe*) is by far the best.

DOWNINGIA.—Charming little Californian half-hardy annuals, generally known as Clintonia. There are two species, *D. pulchella* and *elegans*. *D. pulchella* is of dwarf habit, rarely exceeding 6 inches in height, and is suitable for edging small beds or borders, as when covered with its bright blue flowers it is very pretty. In March and April the seed should be sown in the open ground in a free soil and an open situation. The flowers of the several varieties of *D. pulchella* differ in colour, the best variety being *alba* (white), *rubra* (red) and *atropurpurea* (dark purple). All may be raised from seed.

DRABA (*Whitlow Grass*).—Minute alpine plants, most of them having bright yellow or white flowers, and leaves often in neat rosettes. They are too dwarf to take care of themselves among plants much bigger than

Mosses, and therefore there are few positions suitable for them; but it would be very interesting to try them on mossy walls, ruins, or bits of mountain ground with sparse vegetation. The best-known and showiest is *D. aizoides*, found on old walls and rocks in the west of England. It forms a dwarf, spreading, cushion-like tuft, which in spring is covered with bright yellow blossoms. *D. Aizoon*, *alpina*, *ciliaris*, *cuspidata*, *lapponica*, *rupestris*, *frigida*, and *helvetica* are very dwarf, compact-growing plants. In each the small flowers, white or yellow, are produced abundantly. Rarer kinds are *D. Mawi*, *glacialis*, and *bruniæfolia*, all worth growing in a full collection of alpine flowers for a choice rock garden.

DRACOCEPHALUM (*Dragon's-head*).—Plants of the Sage family, among them a few choice perennials suitable for the rock garden or the mixed border, succeeding in light garden soil and increased by division or seed. *D. altaiense* has bright green leaves, and axillary clusters of large tubular flowers of a dense Gentian-like blue, spotted with red in the throat. *D. austriacum* has flower-stems nearly 1 foot in height, densely covered with rich purple blossoms; *D. Ruyschianum*, a handsome species, has narrow Hyssop-like leaves and purplish-blue flowers, but its variety *japonicum*, a new introduction from Japan, is even more showy. *D. peregrinum*, with pretty blue flowers always produced in pairs, is desirable, and so is *D. argunense*, which is a variety of *D. Ruyschianum*. The most beautiful of all is *D. grandiflorum*, a rock garden plant, which is the earliest in flower. It is very dwarf, and has large clusters of intensely blue flowers, which scarcely overtop the foliage. In *D. speciosum*, a Himalayan species, the small deep purple flowers are nearly smothered by the large green bracts.

DRIMYS.—Evergreen shrubs of the Magnolia family, natives of Tasmania, Australia, and S. America, thriving also as evergreens in much of the southern parts of England and Ireland. *D. aromatica* is sometimes known as *Tasmannia aromatica*, R.Br.; *D. Winteri* (Winter's Bark) is a native of S. America; these graceful shrubs are worth a place in the range of southern country, while they thrive in free soil and sheltered lawns, but are often cut down in severe winters.

DROSERA (*Sundew*).—Most interesting little bog plants, of which all the hardy species but one are natives of Britain. All have leaves covered with dense glandular hairs. In a bog on a very small scale it is not easy to secure the humid atmosphere they have at home, but they will grow wherever Sphagnum grows. The native kinds are *intermedia*, *longifolia*, *obovata*, and *rotundifolia*. The North American Thread-leaved Sundew (*D. filiformis*) is a beautiful bog plant, with very long slender leaves covered with glandular hairs, the flowers purple-rose colour, half an inch wide, and opening only in the sunshine.

DRYAS (*Mountain Avens*).—Mountain plants of the Rose family, containing two or three dwarf alpine plants of spreading growth and neat evergreen foliage. They thrive in borders in light soil, though they are seen to best advantage in the rock garden, where they can spread over the brows and surfaces of limestone rocks, best on an exposed spot, not too dry, though when well established they will flourish under almost any conditions. Division in spring. The kinds are *D. Drummondi*, a dwarf, hardy, evergreen trailer, with flower-stems 3 to 8 inches high; its yellow flowers, 1 inch across, appear in summer. A native of North America. *D. octopetala*, a creeping evergreen, forming dense tufts, with pretty white flowers. It is a British plant, and there are two others, *D. lanata*, a native of Europe, and *D. integrifolia*. American.

ECCREMOCARPUS.—*E. Scaber* is a delightful old climber for walls, trellises, and pillars; its orange-red flowers are beautiful, and its rambling shoots graceful. If the roots are protected during winter they are uninjured, and the plant annually increases in size. Increased freely by seed.

ECHINOCACTUS.—*E. Simpsoni* is a beautiful little Cactus (*Pincushion Cactus*) plant, a native of Colorado, occurring at great elevations, and hardy. It grows in a globular mass, 3 or 4 inches across, which is covered with white spines. It flowers early in March, bearing large pale purple blossoms, which are very beautiful. In its native habitat it enjoys a dry climate, and, in some seasons at least, is more or less protected from frost by

a covering of snow. In this country, however, it has withstood 32° of frost. The flowers are pink or red, arranged in a cluster or circle at the top of the plant. This grows all among the lower mountains and foothills, and in Britain is best on warm spots in the rock garden.

ECHINOCEREUS.—Plants of the Cactus family (from arid regions in N. America), some of which are hardy. All are beautiful and some quite splendid when in flower. *E. Fendleri* bears some of the brightest flowers. Other kinds are *E. næphiceus, gonacanthus, viridiflorus,* and *paucispinus.* Give

Echinocereus.

them soil which is well drained and a sunny, exposed place away from all protection, taking care so to place them in relation to surrounding objects that their stems cannot easily be hurt. A few protecting stones can be grouped so as to keep off the digger and other dangerous animals. A close turf of some dwarf clean alpine will prevent earth splashings and will improve the effect.

ECHINOPS (*Globe Thistle*).—A fine hardy plant from S. Russia, 3 to 5 feet high, covered with a silvery down, *E. ruthenicus* having the flowers blue, in round heads. Thrives in ordinary soil. Easily multiplied by division of the tufts, or by cuttings of the roots in spring. It is the most ornamental of its distinct family, and is highly suitable for grouping with the bolder herbaceous plants. It would also look well when isolated on the turf. *E. humilus* is a very good kind.

ECHIUM (*Viper's Bugloss*).—Handsome plants of the Forget-me-not order, the finer kinds of which, though superb in the open gardens of S. Europe, are too tender for our gardens. *E. plantagineum* is one of the handsomest of the annual or biennial species. Its showy flowers, of rich purplish-violet, are in long slender wreaths that rise erect from a tuft of broad leaves. It is handsomer than our indigenous species, *E. pustulatum* and *E. vulgare. E. rubrum* is a scarce and handsome species, its habit is similar to those above mentioned, but its colour is a reddish-violet, similar to the attractive *E. creticum.* They are all showy and of the simplest culture. The seeds should be sown in ordinary garden soil, either in spring for the current year's flowering, or late in autumn for flowering in early summer. Our native *E. vulgare* is good in certain positions; its long racemes of blue flowers are handsomer than those of the Italian Anchusa. Against a hot wall, where nothing else would grow, Dr Acland, of the Grammar School, Colchester, planted some, and they gave a beautiful bloom. It is valuable for such positions, particularly on hot gravelly or chalky soils.

ELÆAGNUS (*Oleaster*).—Shrubs of much garden value.

E. ANGUSTIFOLIA, the form which grows wild in S.E. Europe, is the wild Olive of the old Greek authors. The long, silvery-grey fruit is constantly sold in the Constantinople markets under the name of "Ighidé agághi," and is sweet and pleasant to the taste, abounding as it does in a dry, mealy, saccharine substance. The general aspect of this form is much more that of a Willow than an Olive, the long lanceolate leaves being greyish above and silvery-white beneath. Best in sandy or warm soil.

E. ARGENTEA (the Silver Berry or Missouri Silver Tree).—Has very fragrant tubular yellow flowers, followed by an abundance of nearly globular, dry, mealy, edible fruit. This species gives a characteristic feature to the vegetation of the Upper Missouri valley, and in a wild state grows 8 or 10 feet in height. The oval leaves are silvery-white. In nearly all British and foreign nurseries this species is confused with the Buffalo Berry (*Shepherdia argentea*), a genus belonging to the same natural order, but altogether different from it.

E. HORTENSIS.—A somewhat variable plant with a wide geographical distribution, is cultivated in many countries for

the sake of its fruit. In Dr Aitchison's *Botany of the Afghan Delimitation Commission* it is described as a shrub or tree occurring at an elevation of 3000 feet and upwards, near running streams, and cultivated largely in orchards for its fruit.

E. LONGIPES.—Prof. Sargent thus writes of it in *Garden and Forest:* "The plant may well be grown for the beauty of its fruit alone, which, moreover, is juicy and edible, with a sharp, rather pungent, agreeable flavour. Both the size and the flavour can doubtless be improved by careful selection, and it is quite within the range of possibility that it may become a highly esteemed and popular dessert and culinary fruit. To some persons, even in its present state, the flavour is far preferable to that of the Currant or the Gooseberry." The fruit, as implied by the specific name, is borne on long stalks; it is bright red in colour and covered with minute white dots. The branches are covered with rusty brown scales, and the somewhat leathery leaves are dark green above and silvery-white beneath.

E. MACROPHYLLA, an evergreen species from China and Japan, has large roundish leaves, greyish above and silvery beneath. It is quite distinct in appearance from any other hardy shrub, and is a very fine silvery evergreen, distinct in effect.

E. PUNGENS, E. GLABRA, and E. REFLEXA are beautiful evergreens, which are not very dissimilar in general aspect, and which without long dry scientific descriptions it would be impossible to distinguish. They are all natives of Japan, etc., but do not appear to be quite as hardy as the species previously mentioned; all could be tried, however, with every prospect of success in the southern counties. Some of them in the south of Europe assume a somewhat climbing habit, and round the N. Italian lakes, for example, grow up to the tops of high Fir and Pine trees.

E. UMBELLATA is a beautiful shrub. The leaves are deep green and glabrous on the upper surface; in a young state earlier in the season they are silvery-grey, and silvery-white beneath. The creamy-white flowers are produced in the greatest profusion in June. In some localities the plant is nearly evergreen, and is probably hardy throughout Britain, as it withstands the winters of N. Germany. In a wild state it occurs from the Himalayas to China and Japan.

ELLIOTTIA RACEMOSA.—A low tree from 15 to 20 feet high, forming a pyramidal head of oblong dark green leaves 4 inches long, and large racemes of flowers each an inch in diameter, and consisting of four white petals borne on a short tubular hairy red-brown calyx. So far it has proved quite hardy at Kew. It is very rare even in its own country, where it is found growing in sandy woods. S. United States.

ELYMUS (*Lyme Grass*).—*E. arenarius* is a wild British grass, vigorous and distinct, which, if planted in deep soil near the margin of a shrubbery, or on a bank on the grass, makes an effective plant, growing 4 feet high, and as we should cultivate it for the leaves, there would be no loss if the flowers were removed. It is frequent on our shores, but more abundant in the north than in the south. *E. condensatus* (Bunch Grass) is a vigorous perennial grass from British Columbia, forming a dense, compact, column-like growth, and more than 8 feet high. It is covered from the base almost to the top with long, arching leaves, and in the flowering season is crowned with erect rigid spikes 6½ inches long, so that it resembles an elongated ear of wheat. It is very ornamental, and may be grown in the same way as the Lyme Grass.

EMBOTHRIUM (*Fire Bush*).—*E. coccineum* is a very beautiful South American evergreen shrub of the Protea family, hardy in warm parts of Britain, even without the protection of a wall. At Coombe Royal, in South Devon, it grows quite 20 feet high, and is a spectacle of wondrous beauty about the end of April or the beginning of May, when every twig carries a cluster of fiery flowers. Even on the favoured Devonshire coast a sharp late frost will sometimes injure the flowers. It thrives near the coast in Southern Ireland and in Wicklow at Mr Acton's, but soon perishes in less favoured places.

EMPETRUM (*Crowberry*). — *E. nigrum* is a small evergreen Heath-like bush, of the easiest culture, which may be associated with the dwarfer rock shrubs. It is a native plant, and the badge of the Scotch clan M'Lean. There are several other varieties, but the plants have less flower beauty than many other mountain shrublets.

ENKIANTHUS. — *E. campanulatus* is a graceful shrub, native of Northern Japan. It has slender branches covered with a light brown bark, and campanulate flowers produced in a pendulous cluster, and of a pale rosy-red colour, with three darker lines on each of the five sections of the corolla.

E. CERNUUS.—A little-known species only recently introduced from Japan, where it is said to be a bush 6 to 8 feet high. The reddish flowers are campanulate, and slightly five-lobed. Syn., *Meisteria cernua*.

E. JAPONICUS.—A rare shrub, first discovered by Sir Rutherford Alcock near Nagasaki, Japan, in 1859, and afterwards introduced by Messrs Standish. The leaves turn to a beautiful deep orange colour before falling in autumn. The pendent flowers are pure white, globose,

Lyme Grass (*Elymus arenarius*).

and contracted to a much narrower mouth than in *E. campanulatus*.

EOMECON (*Cyclamen Poppy*).—*E. chionanthus* is a hardy perennial Poppywort. The root-stocks are usually as thick as the finger; they run freely underground and increase rapidly. The flowers, 2 to 3 inches in diameter, are pure white, with a bunch of yellow anthers in the centre; several borne on stems about 1 foot high. It is apt to grow too freely in good soil. China.

EPHEDRA (*Shrubby Horse-tail*).—Curious greyish, wiry, trailing bushes of S. Europe and N. Africa, rare in our gardens, but hardy here and there, as in the Cambridge Botanic Gardens, where there is light, warm soil.

All these plants resemble to a certain extent the Equisetums, and though they are leafless, or nearly so, the bright green colour of the bark makes them conspicuous at all seasons. *E. distachya* is a native of the southern part of France and Spain, in sandy soils on the seashore, a yard or more high, forming a spreading mass of bright green cylindrical branches distinct from all hardy shrubs; the berries, which do not always appear in this country, are red. It is also known as *E. nebrodensis*. *E. vulgaris* is a smaller plant, and one that will resist more cold, as it is a native of Siberia, also some of the more southern districts of Asia. Other species are found in different parts of the world.

EPIGÆA (*Mayflower*). — A small Evergreen found in sandy soil in the shade of Pines in many parts of N. America, *E. repens* having pretty rose-tinted flowers in small clusters, which exhale a rich odour, and appear in spring. Its natural home is under trees, and it would be well to plant some of it in the shade of Pines or shrubs. It is a charming plant, thriving best in sandy or peaty soil under shrubs, growing only a few inches high.

Epigæa repens (Mayflower).

EPILOBIUM (*French Willow*).—Few of these plants are worthy of cultivation, but some are important, and the best perhaps is the showy crimson native *E. angustifolium*, of which there is a pure white variety. This plant runs in a border so quickly as soon to become a troublesome weed, but is fine when allowed to run wild in a rough shrubbery or copse, where it may bloom with the Foxglove. It is a native of Europe and many parts of Britain. Division. Other kinds somewhat less vigorous are *E. angustissimum*, *E. Dodonæi*, and *E. rosmarinifolium*. The common native *E. hirsutum* is stouter than the French Willow, and is only useful by the margins of streams and ponds, associated with the Loosestrife and such plants. There is a variegated form. The Rocky Mountain Willow Herb (*E. obcordatum*) is a beautiful rock plant. The Willow Herbs of our own latitudes are very tall and vigorous, but on the dreary summits of the Rocky Mountains and the Californian Sierras one species has succeeded in contending against the elements by reason of its very dwarf stature; it has imitated the Phloxes and Pentstemons of the same region; though not more than 3 inches high, it has retained the size and beauty of flower of the finest species, the colour being rosy-crimson.

EPIMEDIUM (*Barren-wort*).—Interesting and, when well grown, elegant plants of the Barberry order, but not shrubby. *E. pinnatum* is a hardy dwarf perennial from Asia Minor, 8 inches to 2½ feet high, with handsome leaves, and bearing long clusters of yellow flowers. The old leaves remain fine until the new ones appear in the ensuing spring. I have found this a most useful bold edging to large beds, and growing so close that it will keep all weeds off. Other species are *alpinum*, *macranthum*, *Musschianum*, *purpureum*, *rubrum*, *niveum*, and *violaceum*, all loving half-shady spots in peat, or in moist, sandy soil. None are so valuable for general culture as the first mentioned.

EPIPACTIS (*Marsh E.*).—*E. palustris* is a somewhat showy hardy Orchid, 1 to 1½ feet high, flowering late in summer, and bearing rather handsome purplish flowers. A native of moist grassy places in all parts of temperate and Southern Europe. A good plant for the bog garden, or for moist spots near a rivulet, in soft peat. In moist districts it thrives very well in ordinary moist soil.

EQUISETUM (*Giant Horse-tail*).—*E. Telmateia* is a tall British plant, of much grace of habit when well developed, and from 3 to 6 feet high in moist, peaty, or clay hollows in woods. The stem is furnished from top to bottom with spreading whorls of slender branches, slightly drooping, the whole forming a graceful pyramid. It is fit for the hardy fernery, shady peat borders, near cascades, or among shrubs, and grows in any moist soil. Division. *E. sylvaticum* is another native Horse-tail, much dwarfer, but graceful when well grown, 8 to 15 inches high, and covered with slender branches. Usually these plants are not fit for garden culture, but some are troublesome weeds.

ERAGROSTIS (*Love Grass*). — Grasses, some of which are worth cultivating for their elegant feathery panicles. *E. ægyptiaca*, with silvery-white plumes, *maxima, elegans, pilosa, amabilis, pellucida, capillaris, plumosa*, are all elegant annuals. They are useful for cutting for the house during summer. Seed may be sown in autumn or spring in the open air, on or in a slightly heated frame. For preserving, the stems should be gathered before the seeds are too ripe.

ERANTHIS (*Winter Aconite*).—*E. hyemalis* is a pretty early plant with yellow flowers surrounded by a whorl of shining green. It is 3 to 8 inches high, and flowers from January to March. It is seen best in a half-wild state under trees or on banks in woody places, though it is occasionally worthy of a place among the earliest border flowers. It often naturalises itself freely in grass, and is very beautiful when the little yellow flowers peep out in early spring. We may therefore enjoy it without giving it positions suited for more delicate plants, or taking any trouble about it, but it is more vigorous on chalky or warm soils, and dwindles on some cold soils. *E. cilicicus* is a recent introduction of like stature and character, though distinct as a species, and of like value and hardiness.

EREMURUS. — Noble tuberous-rooted plants from N. India, Persia, and C. Asia, now finding favour in our gardens. Most of the kinds are handsome, and well suited for the warm sheltered glades of gardens where hardy flowers and plants are grown in a natural and informal way. In such a home they are seen to advantage in bold groups with some of the finest hardy plants, with a background of shrubs. These plants are far more accommodating than at first was imagined. Groups of the bolder kinds associated with *Hydrangea paniculata grandiflora, Lilium Henryi*, and *Azalea mollis* are effective for months on end, and all revel in deep rich loam and leaf-mould. The plants named afford them shelter from spring frosts, which is important. Such bold and vigorous growers as *E. robustus* and *E. Elwesianus* should never be planted in prepared "holes," but, because of their extended root systems, on a much more generous plan, so that their thong-like roots, radiating like the spokes of a wheel from its hub, may be catered for. In planting, keep the crowns of these giants of the race fully 6 inches deep: they will come to the surface a year or two later by the very nature of their crown-above-crown annual increase. The modern, late-flowering hybrids are not averse to thin partial shade, and in such last well, while the earliest sorts are capable of fine effect amid their plantings of Rhododendrons or other shrubs. They thrive admirably in deep, rich, sandy loam, with the addition of some decayed cow manure. Autumn is the best period for planting.

The Rev. F. Page-Roberts writes from Scole Rectory:—

"With a little trouble Eremuri may be grown successfully by every lover of beautiful flowers. All that is necessary for their well-being is protection from slugs, which soon scent them from afar. I keep a perforated zinc collar round the crown and protect from spring frosts. The plant early forces its way up even through the frost-bound earth, but the tender flower-spike, tender only in infancy, is nipped in the bud if rain fall on it and freezes. Protection also from cutting winds which destroy the foliage is needed. With such precautions and planted in loam, deep but not too stiff, in a well-drained sunny border, and with an occasional dose of weak liquid manure, they will repay one for all the care given to them."

E. AITCHISONII.—A fine kind from Afghanistan, where it grows on ridges of the hills nearly 12,000 feet above sea-level, bearing in June dense spikes of pale reddish flowers, robust, and on stems from 3 to 5 feet high.

E. AURANTIACUS. — A dwarf plant, hardy, flowering in April, the numerous spikes of bright citron-yellow flowers giving quite a character to part of the Hariab district, where it is one of the commonest plants on rough ground. It is the vegetable of the Hariab district upon which the inhabitants depend for at least two months of the year. The leaves are cut from the root-stock, as close to the ground as possible, and cooked.

E. BUNGEI.—A beautiful plant with wand-like spikes of yellow flowers 2 to 3 feet high. *E. B. pallidus* (primrose yellow) and *E. B. superbus*, a magnificent plant with towering spikes of yellow flowers, are notable varieties. Native of Persia, flowering in July.

E. HIMALAICUS is a beautiful white flowered kind. The flower-stems are 4 to 8 feet high, the dense racemes taking up quite 2 feet of the upper portion, with flowers as large as a florin. It is one of the hardiest and best of the known kinds. It flowers in May and June, and is a native of the temperate Himalayas.

E. OLGÆ.—A dwarf kind, and one of the latest to flower. The flower-stem is nearly 4 feet high, and is densely set with handsome lilac flowers as large as a five-shilling piece. It is certainly one of the handsomest species. *E. O. roseus* and *E. O. Salmon Queen* are beautiful varieties. A native of Turkestan, flowering in June and July.

E. ROBUSTUS.—One of the best known in gardens, with a huge flower-stem 6 to 10 feet high, bearing a dense raceme of peach-shaped lilac flowers nearly 2 inches in diameter. It is hardy, and may often be seen forcing its shoots through frozen ground. Native of Turkestan, flowering in June.

In addition to the above named are *E. Shelford* and *E. St Michael*, raised by the late Sir Michael Foster, and considered by him to be the best of his many seedlings; *Tubergini* and *Warei*, of coppery-pink hue, and a wide range of seedlings affording shades of cream, pink, buff, salmon, and orange, which, apart from colour, beauty, and novelty, have greatly added to the value of the group by their late (July) flowering.

ERIANTHUS.—A fine grass from S. Europe, *E. Ravennæ* is somewhat like the Pampas Grass in habit, but smaller in size, having violet-tinged leaves. The flowering stems grow from 5 to 6½ feet high, but as it only flowers with us in a very warm season, it must be valued for its foliage alone. Its dense tufts are strongest with us in light or warm soil, in positions with a south aspect. It is poor on cold soils, and will probably not grow well north of London.

ERICA (*Heath*).—Beautiful shrubs, of which the kinds that are wild in Europe are very precious for gardens. Where, as in many country places, the Heaths abound, there is less need to cultivate them, although we cultivate nothing prettier. In places large enough for bold Heath gardens it would be well to plant them, but a small place is often large enough for a few beds of hardy Heaths. Once established they need very little attention. The varieties are often quite as free as the wild sorts, and give delightful colour in a Heath garden, which need not by any means be a pretentious affair, but quite simple. That can only be fairly judged of by those who see Heaths on mountains and moors, where they are among the most beautiful of plants in effect in broad masses. This can hardly ever be shown in small gardens, but why should it not be in large ones? We need not even have a garden to cultivate Heaths in a picturesque way, as almost any rough open ground will do, and some kinds will do among bushes and in woody places. The larger Heaths, where grown, should be massed in visible groups, and the dwarf ones seen in masses also, and not treated as mere "specks" on rockeries. They are all of easy culture, and all the dwarf kinds of easy increase by pulling in pieces and re-planting at once any time from October to April.

E. ARBOREA (Tree Heath).—A tall and graceful shrub of Southern Europe and N. Africa; white flowered, and covering vast areas in the upland woods of Oak or other trees, attaining a height of 12 feet or more in N. Africa, and in the Canaries becoming a tree.

E. AUSTRALIS (Southern Heath).—A pretty bush Heath of the sandy hills and wastes of Spain and Portugal, 2 feet to 3 feet high, flowering in spring in Britain. The flowers are rosy purple and fragrant. It deserves a place in healthy soils.

E. CARNEA (Alpine Forest Heath).—A jewel among mountain Heaths, and hardy as the rock Lichen. On many ranges of Central Europe at rest in the snow in winter, in our mild winters it flowers in January in the south, and in all districts is in bloom in the dawn of spring—deep rosy flowers, carpeting the ground, the leaves and all good in colour. There are one or two varieties, one white. This Heath is not averse to loamy soils, and often thrives on them as well as on peat soil.

E. CILIARIS (Dorset Heath).—A lovely plant, and as pretty as any Heath of Europe. A native of Western France and Spain in heaths and sandy woods; it also comes into Southern England, and is hardy farther north than the districts it inhabits naturally. The flowers are of a purple-crimson, and fade away into a pretty brown. It is excellent in every way, thriving in loamy as well as in peaty soils, and flowering in summer and into late autumn.

E. CINEREA (Scotch Heath).—A dwarf and pretty Heath common in many parts of Britain, and particularly Scotland, very easily grown, and having good varieties.

Among them are *alba, bicolor, coccinea, pallida, purpurea,* and *rosea;* flowering in summer, and very pretty for rock gardens.

E. HIBERNICA (Irish Heath).—Mr Boswell Syme, whose knowledge of British plants was profound, considered this Irish plant distinct from the Mediterranean Heath, the flowering not taking place in the Irish plant till three or four months after the Mediterranean Heath; a fine shrub in Mayo and Galway, growing from 2 to 5 feet high.

E. HYBRIDA (Hybrid Heath).—A cross between *E. carnea* and *E. mediterranea.* It is a good plant, and flowers through the winter and far into the spring, thriving in loamy soil almost as well as in peat, and is excellent as a groundwork below Azaleas.

E. LUSITANICA (Portuguese Heath).—This is for Britain the most precious of the taller Heaths, 2 to 4 feet high, and, hardier than the Tree Heath, it may be grown over a larger area. Even in a cool district I have had it in a loamy soil ten years, and almost every year it bears lovely wreaths of flowers in mid-winter, white flowers with a little touch of pink, in fine, long, Foxbrush-like shoots. This would probably perish in the north, but is a shrub of rare beauty for sea coast and mild districts. Syn., *E. codonodes.*

E. MEDITERRANEA (Mediterranean Heath).—A bushy kind, 3 to 5 feet high, best in peat, and flowering prettily in spring. Although a native of Southern Europe, it is hardier in our country than the Tree Heaths of Southern Europe. Of this species there are several varieties.

E. SCOPARIA (Broom Heath).—A tall and wiry-looking Heath, reaching 8 feet or more in our country, flowering in summer, not showy. I have seen this in cold parts of France (Sologne), and it is hardier than most of the larger Heaths; it is often naked at the bottom and bushy and close at the top.

E. STRICTA (Corsican Heath).—A wiry-looking shrub, compact in habit, about 4 feet high, and a handsome plant. A native of the mountains of Corsica, flowering in summer.

E. TETRALIX (Marsh or Bell Heather).—This beautiful Heath is frequent throughout the northern, as well as western, regions, thriving in moist or boggy places, but also in ordinary soil in gardens. This Heath has several varieties, differing in colour mainly. *E. Mackaiana* is thought to be a variety of the Bell Heather. There is also a supposed hybrid between this and the Dorset Heath. *E. Watsoni* is a hybrid between the Bell Heather and Dorset Heath. Flowering summer and early autumn.

E. VAGANS (Cornish Heath) is a vigorous bush Heath thriving in almost any soil, 2 to 4 feet high. A native of Southern Britain and Ireland, and better fitted for bold groups in the pleasure ground or covert than the garden. There are several varieties, *alba* and *rubra grandiflora* being the best, with St Keverne (rosy pink) the most beautiful of all.

E. VULGARIS (Heather: Ling).—As precious as any Heath is the common Heather and its many varieties, none of them prettier than the common form, but worth having, excluding only the very dwarf and monstrous ones, which are useless except in the rock garden, and not of much good there. Heathers are excellent for forming low covert, and, of all the plants, none so quickly clothes a bare slope or shaly soil, not taking any notice of the hottest summer in such situations. Among the best varieties are *alba, Alporti, coccinea, decumbens, Hammondi, pumila, rigida, Serlei,* and *tomentosa.* Syn., *Calluna.*

E. DABŒCII (Dabœcs Heath).—The name of this fine plant has been so often changed by botanists that it is difficult to find it by name in books, and I give it by the Linnean name here. It is a beautiful shrub 18 inches to 30 inches high, bearing crimson-purple blooms in drooping racemes. There is a white variety even more beautiful, and one with purple and white flowers, called *bicolor.* I have had the white form in flower throughout the summer and autumn on a slope fully exposed to the sun, and in very hot years too. Syn., *Menziesia polifolia,* also *Dabœcia* and *Boretta.* West of Ireland.

E. MAWEANA (Maw's Heath).—Of this Heath, Mr Robert Lindsay writes as follows: "This is one of the handsomest of all the hardy Heaths, and was discovered by Mr George Maw in Portugal in 1872. It may be best described as a very vigorous-growing *E. ciliaris,* which it resembles, but is more robust in all its parts; the flowers also, besides being larger than those of *E. ciliaris,* are darker in colour. It flowers from July to December."

E. MULTIFLORA (Many-flowered Heath).—Somewhat like a white Cornish Heath, but dwarf and close-set; flowers, in the form usually grown, white; many in close racemes. Southern Europe and North Africa on calcareous soil, thriving in ordinary soil in gardens.

ERIGERON (*Fleabane*). — Michaelmas Daisy-like plants of dwarf growth, somewhat alike in general appearance, and having pink or purple flowers with yellow centres. They flourish in any garden soil, and some are of a weedy nature. One or two are best suited for the rock garden; of these,

E. alpinum grandiflorum is the finest. It is similar to the alpine Aster, having large heads of purplish flowers in late summer, and remaining in beauty a long time. Suitable for the rock garden and well-drained borders. Division or seed. *E. Roylei*, a Himalayan plant, is another good alpine, of very dwarf, tufted growth, having large blossoms of a bluish-purple with yellow eye. By far the best of the taller kinds is *E. speciosus*, a vigorous and handsome species, with erect stems that grow about 2½ feet high, and bear during June and July many large purplish-lilac Aster-like flowers with conspicuous orange centres. *E. macranthus*, another showy species, is of a neat habit and about 1 foot high. It bears an abundance of large, purple, yellow-eyed blossoms in summer, and, like *E. speciosus*, will grow in any soil. *E. mucronatus*, known also as *Vittadenia triloba*, is a valuable border flower, neat and compact, and for several weeks in summer is a dense rounded mass of bloom about 9 inches high. The flowers are pink when first expanded, and afterwards change to white, and the plant therefore presents every intermediate shade.

ERINUS (*Wall E.*).—*E. alpinus* is a pretty alpine plant, with racemes of violet-purple flowers, abundant on dwarf tufts of leaves in early summer. In winter it perishes on the level ground in most gardens, but it is permanent when allowed to run wild on old walls or ruins, and it is easily established on old ruins by sowing seeds in mossy or earthy chinks. It is well suited for the rock garden, where it grows in any position, and often flowers bravely on earthless mossy rocks and stones. *E. hirsutus* is a variety covered with down. There is a white variety. Pyrenees.

ERINACEA PUNGENS.—A dwarf, much-branched shrub, forming foot-high cushions of spiny branches, and producing in May and June pea-shaped flowers of an exquisite blue shade. The species is an old introduction from Spain, and despite hardiness and distinctive beauty, still remains one of the most rare of hardy plants. Best suited to sunny positions in the rock garden. Increased by seeds and layers.

ERIOBOTRYA (*E. japonica: Loquat*).—A large-leaved shrub from Japan; in our country tender, and only suitable for walls in warm and sheltered places. Its large evergreen leaves are handsome, and in warm districts it flowers, the blossoms white, but it does not fruit in the open air in England.

ERIOGONUM.—N. American alpine plants which, on the mountains of California, are of much beauty. From a dense tuft of leaves *E. umbellatum* throws up numerous stems, 6 to 8 inches high, on which golden-yellow blooms, in umbels 4 inches or more across, form a neat and conspicuous tuft. In light sandy soil of the rock garden it has never failed to bloom profusely. Other kinds are *E. compositum, flavum, Jamesi, racemosum, ursinum.*

ERIOPHORUM (*Cotton Grass*).—Sedge-like plants, whose heads of white cottony seeds make them interesting in the bog garden or in wet places in grass. *E. polystachyon* is the best for a garden; it is plentiful in some marshy districts.

ERITRICHIUM (*Fairy Forget-me-not*).—*E. nanum* is an alpine gem, closely allied to the Forget-me-nots, which, however, it excels in intensity of azure-blue. Though reputed to be difficult to cultivate, a fair amount of success may be ensured by planting it in broken limestone or sandstone, mixed with a small quantity of rich fibry loam and peat, in a spot in the rock garden where it will be fully exposed, and where the roots will be near half-buried rock. The chief enemy of this little plant, and indeed of all alpine plants with silky or cottony foliage, is moisture in winter, which soon causes it to damp off. In its native habitat it is covered with dry snow during that period. Some, therefore, recommend an over-hanging ledge, but if such protection be not removed during summer, it causes too much shade and dryness. A better plan is to place two pieces of glass in a ridge over the plant, thus keeping it dry and allowing a free access of air, but these should be removed early in spring. Alps, at high elevations. A stone or slate over the plant for the worst months (November to end of February) is a good way.

ERODIUM (*Stork's-bill*).—Like hardy Geraniums, but usually smaller and more southern in origin. Suited for chalky banks or the rock garden, and some are suited for borders, while

others may be naturalised in the grass in warm soil. Among the best species are :—

E. CORSICUM.—A choice alpine species of easy culture, having tufts of grey leaves and rose-coloured flowers. Four inches high. Seeds.

E. MACRADENIUM.—A dwarf Pyrenean plant, 6 to 10 inches high, with the blooms of French white delicately tinged with purple, and veined with purplish-rose ; the lower petals are larger than the others ; the two upper ones have each a dark spot. This plant should be exposed to the full sun, in crevices situated between two rocks, and where the roots can penetrate gritty soil to the depth of 3 feet.

E. MANESCAVI is a vigorous herbaceous plant, and the most showy kind. It grows 1 to 1½ feet high, and throws up strong flower-stalks above the foliage, each with seven to fifteen purplish flowers, 1 to 1½ inches across. It is not fastidious as to soil or situation, but its best place is in dry soil, fully exposed. If the soil be too rich, the plant bears so many leaves that the flowers are hidden. Seed or careful division.

E. PETRÆUM (now MOLTKIA PETRÆA).—This has three to five purplish-rose flowers on each stalk, which are 4 to 6 inches high. The leaves and flower-stalks are densely clothed with minute hairs. It thrives best among the dwarfer alpine plants, in warm positions, in deep sandy or gravelly soil.

E. REICHARDI.—A miniature species 2 to 3 inches high when in flower. The small heart-shaped leaves lie close to the ground, and form little tufts from which arise slender stalks, each bearing a solitary white flower, marked with delicate pink veins ; flowering for many weeks. It should be grown in gritty peat mixed with a small portion of loam.

To the foregoing may be added : *E. caruifolium*, 6 to 10 inches high ; flowers red, about ½ inch in diameter, and in umbels of nine or ten blossoms. *E. romanum*, 6 to 9 inches high ; flowers purplish, in spring and early summer. *E. trichomanefolium*, a pretty kind, 4 to 6 inches high, with leaves deeply cut ; flowers flesh-coloured, marked with darker veins. *E. chrysanthum*, with lemon-yellow flowers, and *E. guttatum*, these being mostly fitted for the warmer parts of the rock garden. *E. daucoides*. *E. supracanum*.

ERYNGIUM (*Sea Holly*).—Handsome perennials or biennials of the Parsley order, but so unlike that class of plants in general appearance as to be often mistaken for Thistles. For the garden—whether the decoration of the border, or rock garden, or the lawn—few plants yield a greater charm from the size and colour of involucres and stems. The stems are so singularly beautiful with their vivid steel-blue tints, surmounted with an involucre even more brilliant, that the effect of good large groups is hardly excelled by that of any plants that live in our climate. The great diversity in the form of the leaves is very interesting, ranging from the great Pandanus-like foliage of *E. pandanifolium* to the very small thistle-like leaves of *E. dichotomum*. Those belonging to the Pandanus set, such as *E. Lasseauxi, eburneum, bromeliæfolium*, are less hardy than some, but are useful among fine-leaved plants, their leaves being mostly of a thick succulent nature, and not liable to be damaged by the cold nights in early autumn ; indeed, in all but very damp places or heavy soils they continue effective as regards foliage all through the winter season. *E. alpinum, Oliverianum*, and *giganteum* are very useful for borders, and all are the more valuable for this purpose owing to the length of time they continue in bloom, and retain their handsome blue tints. They are hardier, too. A good rich and well-drained soil suits most of the species ; damp carries off more of the tender species during winter than cold. Protection is not needed, as the Sea Hollies will stand any exposure so long as the drainage is good. *E. alpinum* may be made an exception to the above directions, as in the south of England ; at any rate, it prefers a shady spot in a good stiff soil. Much the same treatment will also answer in the case of *E. Oliverianum*.

The best way of increasing perennial Sea Hollies is by root cuttings. They may also be easily raised from seed. Sow the seed in pans as soon as gathered, and place in a cold frame. The seeds will germinate in the spring, and if properly managed will be ready to plant out the following year. These plants often "sow themselves," and seedlings come up in all sorts of places.

The under-mentioned are a few of the best kinds :—

E. ALPINUM (Alpine Sea Holly).—This is found in the alpine pastures of Switzerland, and when well grown is not surpassed in beauty by any plant. The involucres, as well as the stems, are of a fine blue, and its flower-stems, about 2 feet high, arise during July and August.

E. AMETHYSTINUM (Amethyst Sea Holly).—This has been confounded with the much more robust *E. Oliverianum*, although they have little in common.

Eryngium Oliverianum.

E. amethystinum rarely exceeds 1 foot to 1½ feet in height, is of a somewhat straggling habit, and has flower heads and stems of the finest amethyst blue. It can be increased by division, and easily raised from seed. Dalmatia and Croatia.

E. GIGANTEUM (Giant Sea Holly).—This is an excellent plant for grouping, and a picturesque object, growing from 3 to 4 feet high, with stout stems and deeply-lobed, spiny, glaucous leaves. The involucre, of eight to nine large, oval, spiny leaves, pale grey or glaucous, is very effective. Caucasian Alps and Armenia.

E. MARITIMUM (Common Sea Holly).—This native plant (*Mertensia maritima*) is a very pretty kind, requiring no special culture. It is one of the most glaucous of the species, flowering from July to October, and grows from 6 inches to 1½ feet high.

E. OLIVERIANUM (Oliver's Sea Holly).—This is of easy cultivation, and the abundance of its highly coloured flower-heads makes it attractive in the flower border. It grows 2 to 3 feet and often 4 feet in height. The ten to twelve bracts composing the involucre are longer than the head of flowers, and have about half a dozen teeth on each side. It ripens seed freely, and in this way it may be readily increased. S. Europe.

Other attractive kinds are *E. Bourgati, campestre, cæruleum, planum,* of which there is a very beautiful variety, *dichotomum, triquetrum, creticum, glaciale, spina-album.*

ERYSIMUM. — Wallflower-like perennials, biennials, and annuals, mostly of dwarf growth. Of the perennials the following are the finest :

E. OCHROLEUCUM (Alpine Wallflower).—This handsome plant forms, under cultivation, neat rich green tufts, 6 to 12 inches high, and in spring is covered with sulphur flowers. The rock garden is most congenial to it ; but it does very well on good level ground, though it is apt to get naked about the base, and may perish on heavy soils. Division and cuttings. Alps and Pyrenees. There are several varieties. Syn., *Cheiranthus alpinus.*

E. PUMILUM (Fairy Wallflower).—A very small plant, rare in cultivation, resembling the alpine Wallflower in the size and colour of its flowers, but lacking its vigorous and rich green foliage. It is often only 1 inch high, and it bears very large flowers for its size. They appear above a few narrow sparsely toothed leaves, which barely rise from the ground.

The Amethyst Sea Holly (*E. amethystinum*).

Alps and Pyrenees. It requires an exposed spot of very sandy or gritty loam in the rock garden, where it must be surrounded by a few small stones to guard it from drought, and it must be associated with alpine plants.

E. RHÆTICUM.—A pretty mountain flower which, though rare in cultivation, is a common alpine in Rhætia and the neighbouring districts, where in early summer its broad, densely-tufted masses are aglow with pretty, clear, yellow blossoms. *E. canescens*, a S. European species with scentless yellow flowers, is also a neat alpine, and so is *E. rupestre*, which is desirable for the rock garden. All of them are easy to grow, and delight in gritty soil and a well-drained and sunny position on the rock garden. Among the biennial and annual kinds, the best is *E. Perofskianum*, 1 to 1½ feet high, with dense racemes of orange-yellow flowers. For early flowering it should be sown in autumn, and again in March and April for later bloom. *E. arkansanum* and *pachycarpum* are similar to *E. Perofskianum*.

ERYTHRÆA (*Centaury*). — Pretty dwarf biennials belonging to the Gentian family. *E. littoralis*, common in some shore districts, is worth cultivating. It is 4 to 6 inches high, and bears an abundance of rich pink flowers, which last a considerable time in beauty. The very beautiful *E. diffusa* is a similar species. It is a rapid grower, with a profusion of pink blossoms in summer.

E. MUHLENBERGI.—A beautiful plant about 8 inches high, putting out many slender branches. It bears many flowers, the blossoms 3½ inches across, of a deep pink, with a greenish-white star in the centre. Seeds should be sown in autumn, and well grown till the spring; the plants will then flower earlier and produce finer flowers than spring-sown plants. They are excellent for the rock garden and the margins of a loamy border. The soil must be moist.

The native kind and its forms are pretty in the fields and shores, and the plants so far rarely have a place in gardens.

ERYTHRINA (*Coral Tree*).—These tropical trees are pretty general through the tropics. Some attain great dimensions, while others are dwarf bushes with woody root-stocks. Many produce beautiful large Pea flowers, usually of a blood-red or scarlet colour. *E. Cristagalli* will thrive for years against a warm south wall in a light soil if protected about the roots in winter.

ERYTHRONIUM (*Dog's-tooth Violet*).—Liliaceous bulbs, among the loveliest of our hardy flowers, with many species and varieties of interest, and high garden value. These belong to N. America, with the exception of:—

E. DENS-CANIS.—A beautiful plant found in various parts of Europe. It has handsome oval leaves, with patches of reddish-brown; the rosy-purple or lilac flowers are borne singly on stems 4 to 6 inches high, and droop gracefully. It thrives in moist, sandy, or peaty soil. In sun or shade it is most valuable for the spring or rock garden, or for a border of choice hardy bulbs, and where it is sufficiently plentiful, for edgings to American plants in peat soil. The bulbs are white and oblong, resembling a dog's tooth, hence its name. It is increased by dividing the bulbs every two or three years, and replanting rather deeply. C. Europe. There are now many varieties—white, purple, rose, and violet. I have planted them largely in grass, and find they thrive in any soil in that way, and are very early and pretty both in leaf and flower, scattered in groups and colonies in turf.

E. AMERICANUM (Yellow Adder's-tongue).—Common in the woods of the eastern states of N. America. Its pale green leaves are mottled, and commonly dotted with purple and white. Flowers 1 inch across, pale yellow, and spotted near the base; on slender stalks 6 to 9 inches high in May. A variety (*E. bracteatum*) differs in having a bract developed, as *E. grandiflorum* sometimes has. It is very pretty, but being somewhat shy to flower, is seldom seen in cultivation. In poor, sandy soil, this little plant blooms better than in compact or cold soil.

E. GIGANTEUM.—A variety of *E. grandiflorum*. Its showy flowers of pure white have a ring of bright orange-red, and measure 3 inches in diameter. It is found in California at an elevation of 6000 to 10,000 feet, and also in Vancouver Island.

E. GRANDIFLORUM.—The only cultivated kind with more than one flower on a stem. In a peat bed, with Lilies and other peat-loving plants, it is very fine, and produces as many as five flowers on a stem.

ESCALLONIA.—The Escallonias in cultivation are often beautiful shrubs, unfortunately sometimes perishing in hard winters save in favoured districts. In mild places the common *E. macrantha* succeeds in the open, but, as a rule, it must be regarded as a wall shrub. Even in the mild districts it is cut down during severe winters, but it usually shoots up again strongly in the returning spring. There is a

variety called *sanguinea*, with deeper coloured flowers. Somewhat similar to *E. macrantha* is *E. rubra*; but the foliage is less handsome and the flowers are paler. *E. Philippiana* is very beautiful and hardy, as it may be grown as a bush in the neighbourhood of London. It is an evergreen with small leaves, and bears a profusion of large panicles of small white flowers. It is a first-rate shrub, and one of the best of the Escallonias. *E. pterocladon* is very free-flowering, the small flowers being white and pink, while *E. punctata* has dark red flowers somewhat similar to those of *E. rubra*. Another species, *E. montevidensis*, also known as *E. floribunda*, bears large, loose clusters of white flowers, and there are seedling forms known under different names, especially in seaside gardens. Among these, *E. Ingrami* is one of the best, being hardier than *E. macrantha*, though not so handsome.

Perhaps one of the best of all is *E. langleyensis*, a hybrid between *E. macrantha* and *E. Philippiana*. It is a shrub of rapid growth, 8 to 10 feet high, with slender wand-like shoots gracefully arched, bearing small neat leaves of a cheerful yellow-green, becoming darker with age, and the stems wreathed throughout their length with vivid crimson flowers as large as a sixpence, in July. In cold places it needs the shelter of a wall, but is fairly hardy, and so beautiful as to be worth trying anywhere. S. America.

ESCHSCHOLTZIA (*Californian Poppy*).—Brilliant annual flowers, of easy culture in ordinary soil. To have them in all their beauty, they should be sown in August and September for early summer bloom. They may be sown later, and should then be allowed to bloom where they are sown. They get deeply and firmly rooted, and flower much longer than if sown in spring. They are very hardy, and snails and slugs do not molest them. There are some half a dozen kinds, well worth growing, viz., *E. californica*; *E. crocea*, saffron colour; *E. c. alba*, white; *E. c. Mandarin*, orange and crimson, very fine; *E. c. fl.-pl.*, double; *E. c. rosea*, and *E. tenuifolia*; and new forms are raised from time to time and given in the seed lists. They are plants that should not be used to any great extent in the select flower garden.

EUCALYPTUS (*Gum Tree*).—Large and handsome Australian trees and shrubs, of which, in the south of England and Ireland, a few of the species live in the open air. Only in the more favoured districts have these trees any chance, and they never present the graceful and stately port which they show in countries that really suit them, such as parts of Italy and California. I think these trees are unfitted for our climate, and even in Algeria, where many species were planted by the French Government, the result, as I saw it some years ago, was anything but good. Among the hardier kinds are *E. globulus, Gunnii, citriodora, amygdalina, cordata*.

EUCHARIDIUM. — Pretty hardy annuals of the Evening Primrose family, thriving under the same treatment as all annuals from California. They may be sown in autumn for early summer flowering, or from March to June for late summer and autumn bloom.

EUCOMIS.—Cape bulbs, not very showy, though deserving of cultivation in the outdoor garden, on account of their broad handsome foliage, more or less spotted with purple at the base, from which rise tall cylindrical spikes of blossoms surmounted by a crown of leaves. Like many Cape plants, they are hardy on light and dry soils. There are four species, all of which are in cultivation. *E. undulata* has leaves 18 inches long, wavy at the margins, and profusely marked on the under surface with dark purple blotches which, in the variety *striata*, assume the form of stripes. The flower spike is 2 to 4 feet high. On the upper half are densely arranged, in a cylindrical manner, numerous greenish-white blossoms, with purplish centre, crowned by a tuft of narrow green leaves. *E. punctata* is the largest kind, having leaves about 3 feet long. *E. regia* is dwarfer than either of the preceding. The raceme of flowers is about 1 foot high, and the tuft of leaves at the top is larger than in other kinds. *E. nana* is the smallest. The spreading leaves lie horizontally, while in the others they are more erect. They thrive best in light sandy soil, with the roots protected by a covering during winter. The foot of a south wall suits them if they are associated with the larger hardy bulbs, but they are not the most effective or graceful of the Lily family.

EUCRYPHIA (*The Brush Bush*).—A handsome shrub, *E. pinnatifolia* hardy, a native of S. America. The flowers, borne plentifully, are very beautiful. They come at the end of the summer, when blooming shrubs are few. The shrub has pinnate leaves and large white flowers about 3 inches in diameter. Propagated by layers. Seed should be plentiful, and that is the best way to increase it.

EULALIA (*E. Japonica*).—A hardy and ornamental perennial grass of robust growth, 6 to 7 feet high. The brownish-violet flower panicles have at first erect branches, but as the flowers open these branches curve over gracefully and resemble a Prince of Wales' Feather. Each of the numerous flowers has at its base a tuft of long silky hairs, which contribute greatly to the feathery lightness of the whole.

E. Cordifolia at Monreith.

E. CORDIFOLIA.—A shrub as fine as that first introduced, but quite distinct, bearing very attractive berries, and growing 10 feet or more high. It is said to be tender at Kew, and even against a wall not to succeed, but it seems quite hardy with me in the Sussex hills. It is a native of Valdivia and the island of Chiloé, where it attains to the stature of a small tree. The illustration shows how it thrives near coast at Monreith. It is also happy on high ground in Kent and Sussex.

EUONYMUS (*Spindle Tree*). — Low trees with little beauty of flower, but of good foliage, habit, and bright fruit. They grow well in almost every variety of soil, and, as a rule, they prefer open sunny situations, particularly the evergreen sorts, and all thrive near the sea.

E. AMERICANUS (American Spindle Tree).—In mild winters and sheltered situations, a small sub-evergreen shrub, of about 6 feet in height. It is found wild over a wide area in Canada and the United

States. It has an erect habit of growth, with numerous long slender branches covered with a smooth light green bark; the flowers, open in June, are succeeded by rough warted brilliant crimson capsules. In this country it is generally cultivated as a wall plant.

E. ANGUSTIFOLIUS (Narrow-leaved Spindle Tree).—A sub-evergreen shrub about 4 feet in height, with long wiry branches, clothed with narrow oblong leaves of a deep green colour in summer, changing in autumn to a dull red tint. The flowers are small, of a greenish-white colour, followed by red fruit capsules. It is a very distinct and interesting shrub for a low wall, and has a pretty effect on raised banks, growing freely in shady sheltered aspects, and in damp, heavy soils.

E. EUROPÆUS (Common Spindle Tree).—This is a native of England, and is a bushy tree, from 10 to 25 feet high; the leaves of a warm green colour, changing as they decay to a reddish tint. Its small greenish-white flowers expand in May, and are followed almost always by an abundant crop of fruit, in bright pink capsules, which, opening up in the autumn, reveal the orange-coloured sac which envelops the seeds, producing a beautiful effect.

E. JAPONICUS (Japan Spindle Tree).—An evergreen species 4 to 6 feet in height, of bushy habit, the branches clothed with numerous leaves of a dark glossy green colour. Though hardy in sheltered districts, it seldom flowers in this country. Few evergreens thrive better near the sea, and either it or some of its varieties are frequently met with on the west and south coasts of England, and west coast of Scotland, forming handsome specimen shrubs on lawns and shrubberies. In the inland districts it suffers from frosts, and can only be depended upon on walls or in favoured situations.

All the varieties thrive best in warm sunny exposure, and in well-drained soils.

E. LATIFOLIUS (Broad-leaved Spindle Tree).—Wild in the south of France and in some parts of Germany, and a tree of from 10 to 20 feet high, the leaves shining green; the flowers, which expand in June, a purplish-white; the capsules large and deep red, contrasting, as they open, most effectively with the bright orange seed pods.

EUPATORIUM (*Thorough-wort*).—Coarse composite perennials, most of which are better suited for the wild gardens than for borders, though two or three kinds are worth a place for supplying cut flowers in autumn. The most suitable are *E. ageratoides*, *altissimum*, and *aromaticum*, which are 3 to 5 feet high, and bear a profusion of white blossoms in dense flat heads, *E. cannabinum* (Hemp Agrimony), *E. perfoliatum*, and *E. purpureum* (Trumpet-weed), a fine object in the rougher parts of a garden, being 12 feet high, with stems terminated by huge clusters of purple flowers. All grow in ordinary soil.

EUPHORBIA (*Spurge*).—Perennials and dwarf bushy plants, including few hardy species of value for the flower garden. The foliage of some, such as *E. cyparissus* (Cypress Spurge), is elegant. In spring *E. pilosa* and *amygdaloides* are attractive by their yellow flowers when little else is in bloom, but they are scarcely worth growing in a general way. Some of the dwarf kinds, such as *E. Myrsinites*, *portlandica*, *capitata*, and *triflora*, are neat and distinct in habit and grow in any soil. The well-known Caper Spurge (*E. Lathyris*) is often seen in cottage gardens, and in habit is a distinct plant, with a certain beauty of foliage and habit. A few plants of it on a bank or rough place are not amiss. They are all poisonous.

EUSCAPHIS. — Summer-leafing shrubs from the Far East, allied to Staphylea. There are two kinds, but only one, *E. staphyleoides*, is in cultivation, and that little known. It grows 10 or 12 feet high, with smooth deeply-cut leaves and clusters of white or yellowish flowers at the tips of the shoots in early summer. In the autumn these give place to red bladder-like fruits of attractive appearance, filled with shining black seeds. China and Japan. The plant needs good soil and a warm place, and is increased by seeds, or cuttings of the ripened shoots rooted under glass.

EVODIA HUPEHENSIS. — Until quite recent years, Evodia was not represented in the outdoor garden, but there are now several kinds suitable for planting in sunny positions in well-drained loamy soil. *E. hupehensis* grows into a small, wide-headed tree or large shrub. The leaves are made up of about eleven ovate leaflets, the larger ones exceeding 5 inches in length and 2½ inches in width. The flowers appear in large terminal clusters in August, a creamy-white colour. Judging from its growth since its introduction, it is likely to become a very useful shrub.

EXOCHORDA (*Pearl Bush*).—Beautiful summer-leafing, hardy shrubs

with pearl-like flower buds: of easy culture.

E. GRANDIFLORA.—One of the loveliest of hardy shrubs allied to the Spiræas, but with larger flowers, forming, when full grown, a rounded bush of about 10 feet high. It flowers about the middle of May, just after the foliage unfolds, and affords a charming contrast between tender green leaves and snow-white flowers as large as florins. It likes shelter, and grows best in warm loam, though hardy anywhere.

E. ALBERTI.—Has larger leaves borne upon stems of stouter and more rigid habit, and of a brighter reddish-brown. The flowers are clustered in erect spikes, are sessile, of a greenish-white, with the petals rather far apart. Coming from C. Asia, it is hardier than the Chinese plant, but does not bloom freely in cold soils. A cross between these two species, known as *Alberti macrantha*, has great vigour, and is more profuse in its snow-white flowers than either of the parents.

EXOGONIUM (*Jalap Plant*). — A graceful perennial trailing plant, none more beautiful among climbing plants than *E. purga*, and of its hardiness there can be little doubt. It has lived for years at Bitton, Gloucestershire, without any protection, and each year it has flowered well. It has grown well at Kew, Fulham, and in the Edinburgh Botanic Gardens. If not checked by late spring frosts at Bitton, it comes into blossom early in September, and continues to flower till cut down by frost. It has roundish tubers of variable size, those of mature growth being about as large as an orange and of a dark colour. These are the true Jalap tubers. The plant gets its name from Xalapa, in Mexico, its native region, and is increased by division of tubers.

FABIANA (*False Heath*).—*F. imbricata* is a pretty shrub of the Potato family, but so much resembling a Heath that it might well be mistaken for one. It is slender, with evergreen leaves, and in early summer every shoot is wreathed with small white trumpet-shaped flowers. A native of Chili, it is not perfectly hardy as a bush except in the southern and western counties, in which it is often a beautiful shrub.

FAGUS (*Beech*).—Not a very large family of trees, but including one of the noblest of all our native Beech. It is a great tree in all the countries of Europe, from N. Greece to Denmark, thriving admirably in soils useless for the Oak and other trees, and beautiful in many of our poor chalky soils. It is so often seen in our woodlands that there is no need to advocate its use elsewhere; a wild tree common in the woodlands and forests in Europe everywhere can have little place in gardens. The varieties of the Beech, however, are of the highest garden value as lawn trees, and some of the most beautiful weeping trees in England are those of the weeping form of the Beech. The fine character of the pendent Beech is that it is not only graceful in a young state, but improves every year of its life, very old trees being picturesque in a high degree. The fern-leaved variety is one of the best, and the purple Beech is the most striking of our coloured trees, and will come true from seed, which is a gain. Even if all the seeds do not come true it does not matter in the least, as long as we get some plants of the colour we seek, and in raising trees from seed we always obtain some slight variation. The Copper Beech is a little paler and more coppery than the old purple Beech, and there is a weeping form as well as a dark purple. These dark coloured forms should not be used too freely—one to three purple Beeches in each parish are ample.

F. AMERICANA (American Beech).—Is in its own country a forest tree well above 100 feet high, inhabiting the northern regions, as well as westwards and southwards, but the European Beech is a so much greater tree, for our climate at least, that less importance is attached to the American sort. *See* also NOTHOFAGUS (Southern Beeches).

FALLUGIA PARADOXA.—A rare and interesting shrub, belonging to the Rose family. Native of New Mexico and regions near. About 4 feet high, composed of a thicket of slender branches clothed with tiny, dark-green leaves, which form a good setting for the white Potentilla-like flowers which open during summer. It might well be tried on walls or warm, sheltered banks by those who are in search of rare and out-of-the-way shrubs for warm walls.

FARFUGIUM.—A vigorous perennial, *F. grande* having fleshy stems 1 to 2 feet high, and with broad leaves of light green variously streaked, spotted with yellow in one variety, and having white and rose in another. It does best in a half-shady position in free moist soil. During the heats

of summer it requires frequent watering, and at the approach of winter it should be moved to the greenhouse, except in mild districts. In colder parts it is scarcely worth planting out, as it grows slowly; but where it thrives it is handsome in borders or on the margins of beds. Multiplied by division in spring; the offsets being potted and kept in a frame until they are well rooted.

FENDLERA RUPICOLA.—A beautiful shrub allied to *Philadelphus*, reaching a height of 12 feet in its own land, but rarely much over 4 feet high with us. Coming from dry, rocky places of Texas and Colorado, it is hardy only in the warmer parts of Britain, and does best against a wall in light fertile soil and in a sunny aspect. The neat grey leaves are nearly like those of a Rock Rose, while the charming pure white flowers, composed of petals set like a Maltese cross, are fragrant and appear in June. Plants are sometimes found in which the flowers have a faint rosy flush. Increase by seeds, which ripen in September, or soft cuttings rooted under glass.

FENZLIA DIANTHIFLORA. — A fragile Californian annual, very attractive with its exquisitely formed flowers and dwarf growth. It is precious for bare spots in the rock garden or the margins of choice beds. Sown in the open in April, it should have a light, well-prepared soil. In cold soils a good way is to sow in boxes and plant out when small near dwarf plants only. It is now classed among the Gilias, but I keep to the old name.

FERULA (*Giant Fennel*). — Very graceful umbelliferous plants long known in our botanic gardens, their charm consisting in large tufts of the freshest green leaves in early spring. The foliage is apt to fade in summer. Where bold spring flowers are naturalised, a group of Giant Fennels will be effective, with their fine plumes in early spring. They are among the true hardy plants of the northern world, never suffering from cold. Their fine forms in summer or autumn, when they throw up flowering-shoots to a height of 10 feet or so, are remarkable enough; but their appearance when breaking up in spring charms us most. The plants do not bear division well, though with care they may be transplanted. One of the most valuable is *F. tingitana*; it takes several years to form strong plants that look like massive plumes of filmy Ferns. *F. communis* is also a good species, and others, including *F. glauca, neapolitana, Ferulago,* and *persica,* may be added where variety is sought. S. Europe and N. Africa. Seed.

FICARIA (*Pilewort*).—Plants of the Crowfoot family, much resembling some kinds of Buttercup. *F. ranunculoides* (Lesser Celandine) is a common British plant, 3 to 6 inches high, bearing glossy yellow flowers in early spring. It is so common that it would not be mentioned but for its pretty double and white varieties. A good plant for growing under trees, in moist borders, in any soil. Division.

F. GRANDIFLORA (Great Pilewort).—A large-flowered kind, about twice the size of our native kind. It is easily grown and showy, and could be naturalised, especially on sandy and free soils. S. Europe.

FITZROYA PATAGONICA (*Fitzroy's Cypress*).—A graceful, and in its own country, stately evergreen forest tree, with some claim to hardiness in Devon, Cornwall, and the south and sea-coast of Ireland. There are beautiful examples of it at Fota, Killerton, and other southern gardens, but its use is limited to these and sheltered coast gardens, and there it will thrive best on open free soils. Andes of S. America.

FORSYTHIA (*Golden Bell*).—Beautiful spring-flowering shrubs, especially *F. suspensa,* whose long, slender, wand-like shoots are studded for a considerable distance with bright golden blossoms. Being of a rather loose habit, it is suited for training on walls or banks; indeed, few subjects are superior to it for a sunny spot, where the wood will thoroughly ripen. When rambling about in a free state, or when hanging over a bank or a cutting, this Forsythia is seen to very great advantage. *F. viridissima,* another species, is quite a shrub. It needs a spot fully exposed to the sun, so that a good display of bloom may be ensured. A certain Forsythia was sent here from the Continent two or three years since under the name of *F. intermedia,* and was announced as a hybrid between *F. suspensa* and *F. viridissima.* Though at first very little disposed in its favour, I have recently seen it in a better light. Its general appearance is about midway between its alleged parents. *F. i. densiflora* and

F. i. spectabilis are well-marked forms of this plant, the last named without doubt the most beautiful of all known Forsythias.

FOTHERGILLA GARDENI (Syn. *F. alnifolia*).—Although introduced many years ago, this deciduous shrub has never become common in gardens. It is perfectly hardy so far as its capability of withstanding our severe winters is concerned, but it is evidently in some way lacking in robustness, otherwise it would not be so scarce. Being only 2 or 3 feet high, and not a very vigorous grower, it is unfitted for the ordinary shrubbery. It blossoms in spring, the inflorescence having a bottle-brush appearance owing to the length of the white stamens, which, petals being absent, form the only conspicuous part of the flowers. The greatest beauty of this Fothergilla is, however, apparent in autumn, when its leaves turn a rich, glowing red. It is a native of Eastern N. America, and the generic name was given in honour of Dr John Fothergill, famous in the later years of the eighteenth century for his botanical collections at Upton, in Essex. *F. Gardeni* enjoys a light loam, and grows all the better if peat and leaf-soil are mixed with the loam at planting-time.—W. J. B., in *Gardeners' Chronicle*.

F. MAJOR.—A deciduous shrub 6 to 8 feet high, forming a rounded bush, with mostly erect stems. The flowers, produced in May on erect cylindrical spikes, 1 to 2 inches long, terminating short lateral twigs. Native of Alleghany Mountains from Virginia to S. Carolina. It was grown in English gardens in 1780, but apparently lost to cultivation until reintroduced to Kew from Arnold Arboretum in 1902. Mr Bean (*Trees and Shrubs*) describes it as a charming shrub, especially to those who love out-of-the-way plants, and says it is decidedly superior to the commoner *F. Gardeni*. Cuttings of fairly firm wood in gentle heat. It is quite hardy.

FRAGARIA (*Strawberry*).—The wild Strawberry is pretty on banks and on old mossy garden walls. *F. monophylla* is a beautiful rock garden plant, with large white flowers. The Indian Strawberry, *F. indica*, is a pretty trailer, bearing many red berries and flowering late. All are of the easiest culture.

FRANCOA (*Maiden's Wreath*). — Chilian plants of the Saxifrage family, somewhat tender, and best for dry sheltered positions on warm borders in light loam. *F. ramosa*, bearing white or pink flowers, and having a short stem, differs from *F. appendiculata*, which is stemless, and has flowers deeper in colour than the others. *F. sonchifolia* has also a short stem, but its leaves are sessile and not stalked, and its flowers are rose-coloured. Often grown as window plants.

FRANKENIA LÆVIS (*Sea Heath*).—A very small evergreen plant with crowded leaves like a Heath, common in marshes by the sea in many parts of Europe and on the east coast of England. Best for the rock garden in ordinary soil, among very dwarf herbs.

FRAXINUS (*Ash*).—The British Ash is a variable tree, and its varieties are more valuable than those of many other trees, the best of them not depending on mere variegation, but sometimes on habit, as in the pendulous variety, so well known, and used for bowers and on lawns. There is a form of this with yellow shoots, and certain kinds with singular leaves—mere monstrosities without value, for this fine tree has not escaped the variegation hunter. There is a variety of *F. Leptiscifolia*, a native of Asia Minor, which is pendulous in habit.

The Ash is never more beautiful than when fully exposed in the cool and northern parts of the country, and in Ireland and Scotland. America is rich in species, and in past times, before the conifers mania arose, they were planted, but of late very little attention has been given to them, and few of these reach the size and fine form of our native Ash.

Occasionally very picturesque effects arise from grafting the Weeping Ash on a very tall stem of the ordinary kind, of which there is a good example at Elvaston.

F. ORNUS.—The celebrated Manna Ash, a native of the East and Mediterranean regions, which has several varieties. It is an effective and hardy tree in England, and even in London gardens is vigorous and handsome. It is grafted on the Common Ash, so what it would be if on its own roots we have no knowledge. Its place is generally among the larger flowering trees. Syn. *Ornus*.

FREMONTIA (*D. californica*). — A handsome Californian shrub. A fine old plant in Sir Harry Veitch's garden, East Burnham Park, having outgrown

the wall against which it was planted, has risen many feet above, and flowers there with remarkable freedom, without the least protection, year by year. In flower it is a fine sight. It has large yellow bowl-shaped flowers, 2 inches or more across, the deep, green leaves being lobed. In favourable places it reaches 10 or 12 feet in height, and flowers in early summer. It succeeds best against a north, west, or east wall, a southern exposure being usually too hot and dry. It is, some think, a naturally short-lived tree.

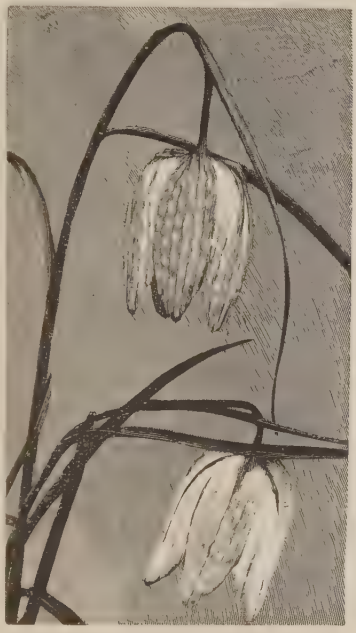
FRITILLARIA (*Fritillary*).—Bulbs of the Lily family, several of which are valuable, some, such as the Crown Imperial, being stately; others, such as *F. recurva*, being delicate and pretty, but most have dull-tinted, curiously interesting flowers. They may be put to many uses—the Crown Imperial is a fine plant for the mixed border or the shrubbery. The Snake's-head (*F. Meleagris*) and others, such as *F. latifolia, pyrenaica*, together with the choicer kinds, are fitted to the bulb border and for grassy places. They may all be readily increased by offsets from the old bulbs, which should be lifted every three or four years and planted in fresh soil. The lifting should be done in autumn, and the bulbs replanted without delay.

F. AUREA.—One of the prettiest of the genus, quite hardy, about 5 inches high. Has a stem of 4 to 6 inches thick, fleshy, deep green leaves, with a nodding flower, which is pale yellow spotted, or chequered with brown. Silesia. Should be lifted and rested each year for a short period.

F. BURNETI.—A handsome hardy plant about 9 inches high, with solitary drooping blossoms, 2 inches long, which are of a plum colour chequered with yellowish-green. Alps. Flowers with the Snowdrop, and is as easy to grow.

F. IMPERIALIS (Crown Imperial).—A showy and stately plant, from 3 to 4 feet high, with stout bright green shoots, crested by large dense whorls of drooping bell-like flowers and a crown of foliage. There are several varieties, differing chiefly in the colour of the flowers. The principal are—*lutea* (yellow), *rubra* (red), double red and double yellow, *rubra maxima* (very large red flowers), Aurora (bronzy orange), sulphurine (large sulphur-yellow), Orange Crown (orange-red). This plant thrives best in a rich, deep loam, especially if the bulbs remain undisturbed for years. Its best place, perhaps, is in a group on the fringe of the shrubbery or a group of American plants. These are essentially garden plants, their strong odour being against them when gathered.

F. KARELINI.—An interesting kind, 4 to 5 inches high, with two or three broad leaves clasping its stem, and having a terminal raceme of slightly drooping, bell-like flowers. These flowers, about 1 inch across, are of a pale purple, with darker veins, a few darker spots, and a distinct yellowish-green pit at the base of each reflexed segment. Native of C. Asia, and,



White Fritillary.

flowering in late autumn or early winter, is valuable for a collection of winter-flowering outdoor plants.

F. LATIFOLIA.—Variable as regards the colour of the flowers, which are larger than those of our native *F. Meleagris*, and are borne on stems about 1 foot high, are pendulous, and vary in colour through various shades of purple, black, lilac, and yellow. The principal named varieties are—Black Knight, Captain Marryat, Caroline Chisholm, Cooper, Dandy, Jerome, Maria Goldsmith, Marianne, Mellina, Pharaoh, Rembrandt, Shakespeare, Van Speyk, each representing a different shade of colour. They grow freely in an open situation in any soil, and are excellent for naturalising. Caucasus.

F. MELEAGRIS (Snake's-head).—An elegant native species, of which there are numerous varieties. It is 9 to 18 inches high, and in early summer bears a solitary

drooping flower, beautifully tessellated with purple or purplish-maroon on a pale ground. The chief varieties are—the white (*alba*), which has scarcely any dark markings; *nigra*, a deep purplish-black; *pallida*, light purple; *angustifolia*, with long narrow leaves; *major*, with flowers larger than the type; *præcox*, which flowers about a week earlier than the other forms; *flavida*, yellowish; and the rare double variety. All forms of this beautiful plant may be used with excellent effect. It grows freely in grass not mown early, and is therefore admirable for the wild garden; its various forms are among the most beautiful inhabitants of the hardy bulb garden, and tufts of the chequered or white-flowered variety are among the most graceful plants in cottage gardens.

F. MOGGRIDGEI (Golden Snake's-head).—A beautiful plant with pendulous blossoms, 2 inches long, which are of fine golden-yellow, chequered with brownish-crimson on the inner surface of the bell. It may be seen on its native Alps, at an elevation of 5000 to 7000 feet, among the short stunted grass, accompanied by alpine plants, and giving the slopes the appearance of a sheet of golden bloom. It is hardy, and flowers early in spring.

F. PUDICA.—One of the most charming of hardy bulbs. Native of the Rocky Mountains and the Sierra Nevada of California, in a dry, barren soil. It is one of the principal ornaments of the spring flora, being nearly 6 inches high, and having bright golden-yellow flowers, graceful in form and drooping like a Snowflake. It thrives in warm, sunny borders of loamy soil, or preferably in almost pure sand.

F. RECURVA.—The showiest of the Fritillaries, its red colour being as bright as some Lilies, and mixed with bright yellow, especially on the inside of the flower. It flowers early in May or towards the end of April. The bulbs consist of a slightly flattened tuberous stock, covered by articulated scales, somewhat widely placed. A tuft of bright green linear leaves appears above the soil, and from this rises a slender purplish stem, 6 inches to 2½ feet high, with several pendent Lily-like flowers. It is not robust, and has succeeded only under careful cultivation, growing best in fibry loam, on a warm sunny border, near a wall. Best when lifted and rested for a few weeks each year. California.

F. SEWERZOWI.—A singular-looking plant, growing from 1 to 1½ feet high, having broad glaucous leaves and nodding flowers that are greenish outside and vinous-purple within. A native of the mountains of Turcomania, quite hardy in our climate. Propagated by bulblets or seed.

Many others are in cultivation, but the majority are unattractive, though some are useful for naturalising. The most suitable are—*F. delphinensis*, a robust plant with stems 1 foot or more high, bearing brownish-purple flowers, more or less chequered with greenish-yellow; *F. pyrenaica*, a similar species, but more robust.

FUCHSIA.—Graceful and distinct shrubs, flourishing near the coasts, and especially in southern and western parts. In other districts Fuchsias are cut down by frost, but spring up again, and, in fact, live the life of herbaceous plants; but in mild districts they often escape for years, and become handsome bushes. All may be freely propagated from cuttings in spring or autumn. There are about a dozen more or less hardy kinds that succeed in the open air in the southern and western counties.

F. COCCINEA.—A bushy plant, graceful, hardy, and free in growth and bloom, unless the soil be of the coldest description, and even then a slight covering of coal ashes after the stems are cut down in autumn will protect the roots in winter. Chili.

F. CONICA.—A vigorous compact species 3 to 6 feet high, but not such a free flowerer as some of the others. The flowers have scarlet sepals and dark purple petals. Chili.

F. CORALLINA.—A beautiful tall plant, and therefore suited for walls and houses. The flowers are large and of a showy red colour, and the plant is a vigorous grower and free bloomer.

F. DISCOLOR.—A dwarf variety with numerous small scarlet flowers. It is the hardiest of all, not being injured by the winters in the milder parts of Scotland if treated as a herbaceous plant. *F. pumila* is similar, but more slender, and equally desirable.

F. GLOBOSA.—One of the best of the hardy Fuchsias. The flowers are globose in bud, and retain their shape for some time after they begin to expand, on account of the petals adhering at the tips. It forms a sturdy and often a large shrub in seashore districts.

F. GRACILIS.—A distinct, slender plant, with flowers on long slender stalks. The young shoots are a purplish-red, the calyx is a brighter scarlet, and the corolla has a greater infusion of red than other hardy kinds. There is a variety called *multiflora*, which is very free-flowering, and which has shorter flowers and of darker crimson. *F. tenella* is a seedling variety. Chili.

F. RICCARTONI.—One of the prettiest and hardiest sorts, growing well without

protection even in parts of Scotland. It is compact and twiggy, and in summer bears many bright red blossoms. A garden hybrid.

Besides these, other kinds are in cultivation, such as *procumbens* — a curious little New Zealand species— *serratifolia, magellanica, thymifolia,* and *microphylla,* and nearly all the hybrid kinds do out of doors in summer, and bloom well, though they may be cut down in winter. Among the most distinct and pretty are the dwarf and fragile kinds, such as *F. microphylla, F. pumila,* and several hardy hybrids of the globose section, all of which seem to flourish near the sea.

Plantain Lily (*Funkia Sieboldi*).

FUNKIA (*Plantain Lily*).—Valuable Japanese plants of the Lily order, of which there are about half a dozen species and numerous varieties. The different species are free-flowering, herbaceous plants, with spikes of bell-shaped flowers, but the chief value is in the foliage. They are noble plants, most useful for many positions in the garden, while few lend such a fine effect as *F. Sieboldi* when finely developed. They are highly suitable for grouping, and few plants thrive better in open places in shrubberies or near water. The bold, striking foliage of some of the strongest plain-leaved section renders them very effective for edging large beds. They are best seen in well-drained deep soil. All are easily multiplied by division in spring or autumn. The best are :—

F. FORTUNEI.—This strong species has smaller and more leathery leaves than *F. Sieboldi,* and they are of a much more bluish or glaucous tint. The flowers are pure white or pale mauve.

F. GRANDIFLORA (Corfu Lily).—Is 12 to 18 inches high, producing in August and September numerous large, pure white, sweet-scented flowers. It is best in groups, beds, or borders, in a well-drained sandy loam. About Paris it is grown as a flower garden plant, but with us it does not flower regularly unless in sunny spots and warm, well-drained, and very sandy loam. The young leaves are a favourite prey of slugs and snails.

F. LANCIFOLIA.—A small species, with tufts of lance-shaped leaves, narrowing from the middle towards both ends. There are some interesting varieties, chief among which are the white-flowered

variety, a beautiful plant, *spathulata*, and *plantaginifolia*, with long narrow leaves.

F. OVATA.—Has large tufts of broad, deep, shining green leaves. Flower-stems 12 or 18 inches high, terminating in a short raceme of lilac-blue flowers, which appear in late summer and autumn. One of the strongest species, and when in flower is very handsome. There is a variegated-leaved form.

Gaillardia.

F. SIEBOLDI.—The finest for foliage. It is 18 inches to 3 feet high, and has large glaucous leaves, somewhat heart-shaped. Admirable plants for picturesque groups, very hardy, easy of increase by division, thriving in any soil, but the foliage effect is finer on deep, rich soil.

GAILLARDIA (*Blanket Flower*).—Handsome perennial and biennial herbs including some of the showiest flowers, valuable for their long duration both on the plants and in a cut state. The genus numbers some half a dozen species from N. America, and many garden varieties. The numerous kinds now in gardens appear to fall under three species, but there is a strong family likeness throughout the series. The kinds are :—

G. ARISTATA.—A perennial 1 to 1½ feet high, with narrow leaves, sometimes deeply cut. The flowers are 1½ to 4 inches across, the ray florets having an outer zone of orange-yellow and an inner one of brownish-red, while the centre is deep bluish-purple. It is the commonest kind, and having been raised largely from seed, has many varieties, differing more or less widely from the type, with various names. *G. picta* somewhat resembles *G. aristata*, but has smaller flowers, and is a biennial. It is dwarfer, and its flowers are brighter. *G. amblyodon* is a beautiful Texan annual, introduced a few years ago. Its flowers are even smaller than those of *G. picta*, and are of a deep cinnabar red.

The garden varieties, as has been stated, are numerous, but the most distinct of those named are :—

G. GRANDIFLORA.—Said to be a hybrid, presumably between *G. picta* and *G. aristata*, is a beautiful and vigorous plant with large brightly-coloured flowers, which are only surpassed by its variety *maxima*. It is by far the finest of all.

Gaillardias in many soils soon exhaust themselves by their flowering, and should be renewed periodically from seed, the seedlings being most vigorous and free. Named sorts may, however, be raised from root cuttings inserted from January to March in gentle heat.

All thrive in good friable garden soil, but not on a cold stiff soil or on one that is too light or dry. Where possible they should be grown in bold groups, for they thrive better if so placed than as solitary plants in a parched border, and no plants have a finer effect in a bed by themselves. Where apt to die in winter, they may be used in mixed borders.

GALANTHUS (*Snowdrop*).—The Snowdrop never looks better than when naturalised in turf in orchards, on the margins of lawns, or beside woodland walks. Almost any soil suits the Snowdrop, but peaty and warm open soils are best. All the Snowdrops are hardy, and may be naturalised, grown on the rock garden, or in the wild garden, where they may be associated with Anemone, early Crocuses, Winter Aconites.

The present growing state of our knowledge of Snowdrops may best be gleaned from a paper read by Mr Jas. Allen before the Royal Horticultural Society, of which the following is an abstract :—

G. IMPERATI.—I think no botanist would be able to say where *nivalis* ended and *Imperati* commenced. In the section to which *G. nivalis* and *G. Imperati* belong, there are some most lovely Snowdrops, amongst which I would mention first Mr Melville's Dunrobin form. *G. n. Atkinsi* is second to none in size, form, quality and freedom in growth. It is the plant known to some as *Imperati* of Atkins.

G. PLICATUS.—Is very distinct, and in its best forms of great beauty. The foremost place in this section belongs to *G. p. maximus*. *G. plicatus* usually flowers late, but I have a selected form, *G. p. præcox*, which flowers with the early varieties of *G. nivalis*. Another selected form, *G. p. Omega*, flowers with the very latest.

G. ELWESI.—The best forms of this are large and handsome, but it wants the most sheltered spots in the garden to thrive. Many find it difficult to manage, but with me it grows very freely, especially on one bed of very light soil, where the seedlings are almost a nuisance.

G. LATIFOLIUS.—The most distinct of all Snowdrops, with its broad grass-green foliage and small pure white flowers, it has a delicate beauty all its own, more especially just before the bud expands, when the two leaves curve so lovingly round the flower-stem.

G. FOSTERI.—The markings on the inner petals are very similar to those of *G. Elwesi*, but the foliage is quite different, being broad and somewhat blunt, and in shape and colour much like the leaves of *Scilla sibirica*.

GALAX (*Wand Plant*).—*C. aphylla* is one of the neatest little plants for the rock garden ; its white wand-like flowers are in dense spike-like racemes 9 to 15 inches high. The heart-shaped evergreen leaves are produced in cushion-like tufts, and in autumn are a rich crimson. Of easy culture in moist peat or leaf-soil, in the bog garden, or on the margins of beds of dwarf shrubs in peat. America. There is a larger form, *G. macrophylla*.

GALEGA (*Goat's Rue*). — Graceful perennials of the Pea family flourishing in any soil. On account of their free growth they are useful for the wild garden, and are effective in groups. They are herbaceous perennials, growing from 2 to 5 feet in height. The best kinds are—*G. officinalis*, or Common Goat's Rue, a native of S. Europe, and 3 to 5 feet high, in summer bearing dense clusters of Pea-shaped blossoms of a pretty pink. There is a white variety (*alba*) useful for cutting. *G. orientalis* is from the Caucasus, 3 to 4 feet high, with bluish-purple flowers. *G. patula Hartlandi* has pale blue and white flowers, and with *G. His Majesty* are the most ornamental of these plants.

GALTONIA (*Cape Hyacinth*). — A noble bulb from the Cape, *G. candicans* having spires of waxy, white, bell-like blossoms, 1½ inches long, on stems 4 to 6 feet high, in late summer and autumn. It is of easy culture, hardy in light soils, and valuable for bold groups in the mixed border, in the flower garden, or between choice shrubs and among hardy Fuchsias.

Increased by offsets from the bulbs, or from seeds, which flower about the fourth year.

GARRYA.—*G. Elliptica* is a fine Californian Evergreen, and beautiful winter-flowering shrub. In mild winters it begins to flower as early as

Garrya elliptica.

December, and bears among handsome deep green leaves gracefully drooping tufts of pale green catkins, which, if cut with the twigs, endure a long time in vases, and are welcome in winter. Though often grown on walls, it is hardy and makes a dense bush, 5 to 8-10 feet high. In cold districts it is well to give it shelter, but in the south and west it does not require this. There are male and female forms, the most elegant being the pollen-bearing plant. Killed at Gravetye, we had to give it up as a bush in the orchard.

GAULTHERIA (*Partridge Berry*).—Dwarf evergreen shrubs, *G. procumbens* having berries which give it a charm in winter, when it is one of the brightest plants in the rock garden. Its drooping white flowers are also pretty. A native of sandy places and cool damp woods from Canada to Virginia, and often found in the shade of evergreens. it does best in moist peat, and forms edgings to beds where the soil is of that nature, but it will also grow in loam. Easily increased by division or seeds. Suitable for the rock garden, for the front margins of borders, and for edgings to beds of dwarf American plants, and it is best where well exposed. *G. Shallon* is too large for all but the rougher flanks of the rock garden, being a vigorous shrub and an excellent covert for game.

G. PYRALOIDES and G. FORRESTI.—The latter a charming dwarf plant, with box-like leaves, are among the more recent additions to this group of shrubs.

G. TRICHOPHYLLA.—An elegant little plant for the rock garden, doing admirably in sandy peat and leaf-soil. The leaves are very small and numerously produced on the sub-prostrate branches, and are hairy at the margin. The pretty pink flowers are succeeded in autumn by peacock-blue berries. Himalayas.

GAURA.—*G. Lindheimeri* is a graceful perennial, 3 to 4½ feet high, flowering in summer and autumn, on long, slender spikes bearing numerous white and rose flowers.

GENISTA (*Rock Broom*).—Some of these are good garden and rock garden shrubs, thriving in almost any soil which is not too wet, and readily raised from seeds.

G. ÆTNENSIS.—A native of Sicily, is one of the best kinds. In a young state the twigs are sparsely clothed with linear silky leaves, but when old no leaves are developed, and the green slender twigs perform the functions of leaves. An old tree—for this species attains a height of 12 feet or more—is a beautiful sight in July or August when in full flower.

G. ANGLICA (Needle Furze).—A prostrate spiny shrub, sometimes growing to a height of 2 feet, widely distributed throughout W. Europe, and in Britain occurring on moist moors from Ross southwards. The short leafy racemes of yellow flowers appear in May and June.

G. GERMANICA.—A species widely distributed throughout Europe, it makes a bright rock garden shrub not more than a couple of feet in height. It flowers very freely during the summer and autumn months, and the stems are inclined to arch when 1 foot or more high.

G. HISPANICA.—Native of S.W. Europe, and a compact under-shrub, evergreen from the colour of its shoots. It scarcely attains more than 1 foot or 18 inches in height, and the crowded racemes of yellow flowers are borne at the tips of the spiny twigs from May onwards.

G. PILOSA.—A dense, prostrate bush and a delightful rock garden plant. In Britain it is rare and local, being confined

to gravelly heaths in the south and south-west of England. It grows freely and flowers abundantly in May and June.

G. RADIATA.—Native of C. and S. Europe, 3 or 4 feet in height, evergreen from the colour of its much-branched spiny twigs. The terminal heads of bright yellow flowers are throughout the summer months. It is hardy in the south of England.

G. SAGITTALIS.—A frequent plant on the alpine meadows of Europe. In habit it differs widely from any of the other kinds, the leaves being replaced by a winged stem. It scarcely grows a foot high, and forms a mass of branches bearing racemes of yellow flowers in May and June.

G. TINCTORIA (Dyer's Greenweed).—Occurring in a wild state in Britain, it rarely exceeds 18 inches in height, and is a spineless shrub bearing a profusion of bright yellow flowers from July until September.

GENTIANA (*Gentian*).—Dwarf evergreen alpine plants, some of them difficult to cultivate, but others easily grown (on the rock garden and in borders). The most precious are the perennial alpine kinds, which are such a beautiful feature on the mountains of Europe, and with care in our gardens spread into healthy tufts and flower as well as on the mountains.

G. ACAULIS (Gentianella).—An old inhabitant of English gardens, and among the most beautiful of the Gentians. It is easily cultivated, except on very dry soils. In some soils edgings are made of it, which, when the plant is in flower, are of great beauty. It is at home on the rock garden, where there are good masses of moist loam in which it can root. With us the flowers open in spring and in early summer, but on its native hills they open according to position, like the Vernal Gentian. *G. alpina* is a marked variety with small broad leaves, and there are several other varieties. Their colours vary from the deepest blue to white, and in one white flower the tips of the corolla are a rich blue. In all the forms, except the white, the throat of the corolla is spotted with blue on a greenish ground, and all have greenish marks on the outside. Alps and Pyrenees.

G. ASCLEPIADEA (Willow Gentian).—A good herbaceous kind, this gives no trouble, but dies down out of harm's way in winter. Well grown, it will spring up to 2 feet, and freely produce good-sized flowers of a purple-blue along nearly the whole stem in late summer and autumn. This Gentian will grow in open woods. It may therefore be naturalised, and its effect among the grass in a wood is charming. There is a white form. It is freely increased from seeds and by division. Europe.

G. BAVARICA (Bavarian Gentian).—In size this resembles the Vernal Gentian, but it has smaller Box-like leaves of yellowish-green, and its tiny stems are thickly clothed with dense little tufts of foliage, from which arise flowers of lovely iridescent blue. While *G. verna* is found on dry ground, or on ground not overflowed by water, *G. bavarica* is in perfection in boggy spots, by some little rill. We must imitate these conditions if we desire to succeed, and a moist peat or bog bed, with no coarse plants near, will enable us to grow this lovely plant. Alps.

G. FARRERI.—A novelty of great beauty and importance from China, having affinity

Gentiana affinis.

with *G. sino-ornata*. It forms spreading masses, the stems furnished with long linear leaves and terminated by flowers of the largest size—surpassing those of *G. acaulis* in this respect—and of the most beautiful sky-blue imaginable. The tube is white. Peat and sandy loam, with moisture in full sun. Cuttings made of the young shoots root readily, and soon make plants. September.

G. FREYNIANA.—A beautiful and amiably disposed species of the easiest cultivation, and very free flowering. The flowers, which appear in July and August in terminal club-like clusters on foot-high stems, are of intense indigo blue. First-rate in every way. Seeds.

G. LAGODECHIANA.—A sub-prostrate growing species having probably affinity with *G. septemfida*, of which it may be said to be a vigorous form. It quickly forms foot-wide masses of semi-procumbent stems, thickly furnished with small glossy

green leaves, and terminated by clusters of brilliant blue white-throated flowers, whose lobes are copiously freckled with white. Best in deep sandy loam. No species is more easily cultivated. August and September. Increased by seeds.

G. SEPTEMFIDA (Crested Gentian).—A lovely plant, bearing on stems 6 to 12 inches high clusters of cylindrical flowers, widening towards the mouth and a beautiful blue-white inside, and greenish-brown outside, having between each of the larger segments one smaller and finely cut. In the variety *cordifolia* leaves are more cordate, but it grows about only half the height of the type, with a much neater habit, and there is a dwarf form. Best in moist sandy peat. The finest of all is the variety *latifolia*. All are of sub-prostrate habit, flowering in August and September. Seeds. Caucasus.

G. SINO-ORNATA.—The advent of this autumn-flowering species enriched our gardens, it having proved of more facile cultivation than the Himalayan *ornata* or the earlier introduced *Veitchiana*. Flowers rich blue. Peat and sandy loam, with moisture in full sun. Readily increased by cuttings. September and October.

G. VERNA (Vernal Gentian).—One of the most beautiful of alpine flowers, thriving in deep sandy loam, with abundance of water during the warm and dry months, and perfect exposure to the sun. It thrives wild in cool pastures and uplands, where it is rarely subjected to such drought as it is in a parched border. Grit or broken limestone may be mingled with the soil; if there be plenty of sand this is not essential; a few pieces half buried in the ground will tend to prevent evaporation and guard the plant till it has taken root. It is so dwarf that if weeds be allowed to grow round it they soon injure it, and tall plants overshadow or overrun it. It is abundant in mountain pastures on the Alps, in Asia, and also in Britain.

G. V. ANGULOSA, with winged calyx, has flowers almost twice as large as the type and equally brilliant, while it is of the easiest cultivation. Its requirements are the same, and it may be raised by hundreds from seeds, if these are sown practically as soon as ripe. No alpine merits the attention of the cultivator more than this.

Mr Correvon, of Geneva, who knows these plants well, classifies them as follows for cultivation:—

Acaulis Group.—*Alpina, angustifolia, Clusii,* and *Kochiana,* which thrive best in calcareous soils, except the last, which requires a soil free of it. In our country they thrive in a way on moist soils, but flower best in the limestone soils of Ireland. They will not flower well in shade.

Dwarf tufted kinds requiring care on the bog or rock garden, those marked * thriving in moist open soil in turf or sphagnum in full sun: the others dryer spots and pebbly soil; calcareous soil to be preferred for *vernea* and its forms. *G. *bavarica, brachyphylla, Favrati, imbricata, pyrenaica, *Rostani, *septemfida, verna.*

Kinds for marshy ground: — *G. Andrewsi, angustifolia, asclepiadæa, Pneumonanthe.* [Most of these seem of easy culture, but the American kinds gradually perish on heavy, compact soils.]

Kinds thriving in leaf soil and sandy peat, with broken bits of sandstone:— *G. alba, Bigelowi, ciliata, frigida, Freyniana, Frœlichii, Kurroo, Parryi, pumila, Wallichiana, Weschniakowi.*

Kinds of easy culture:—*G. brevidens, cruciata, dahurica, decumbens, Fetisowi, Kesselringii, macrophylla, Olivieri, phlogifolia, Przewaldskii, Saponaria, scabra, straminea, tibetica, Tianschanica, Walujewi, Weschniakowi.*

These groupings are, like so many others, arbitrary if convenient. Many of the rarer kinds of Gentian come from countries little known to us, and even if we did know them the cultivation of plants is often only learned through experience, and it is common to see them thriving in conditions wholly different from those in which they grow naturally. Certain things, however, are to be borne in mind by those who aspire to cultivate Gentians, viz., that these are alpine or high mountain plants, or plants of the open breezy marsh, and that in such conditions they rarely have to do with compact heavy soils. Gritty, sandy, or peaty soils therefore suit them best—even marsh land, though saturated, is free in texture.

They grow also very often above the tree and shrub line of life, and are therefore fully exposed to the sun, and any planting of them on stuffy, half-shady conditions common in many gardens is against them, as also is the unfortunate and common practice of putting rock gardens in hollow places instead of places fully exposed to the sun. Lastly, to associate them with ferns or taller or more vigorous plants is a mistake; and, above all things, the printed lists or any other lists must not be taken to mean that the great beauty of some kinds is typical of all, as not a few Gentians are unworthy of garden cultivation. I have grown them in the most unlikely place of all, a battered wall with earth behind, and they flowered very well.

The plan may be worth trying in certain soils with *G. acaulis*, where it fails to flower in borders.

GERANIUM (*Cranesbill*).—The hardy Geraniums are usually stout perennials and natives of the fields and woods of Europe and Britain, though some are dainty alpine flowers. The handsomest of them is probably *G. armenum*. It is sometimes 3 feet in height, flowering in midsummer abundantly, and sometimes till late in autumn to a less degree. Its flowers are large and handsome. It requires only ordinary garden soil, and is well

A group of hardy Geraniums.

suited for the mixed border, or for grouping with the finer perennials in beds or on the margins of shrubberies. Some other kinds are showy, and the best of these are: the dwarf *G. sanguineum*; its beautiful Lancashire variety, with rose-coloured blossoms finely marked with dark lines; *G. pratense*, a tall kind, with large purple flowers; and its pure white variety. There is also an intermediate form with white and purple flowers. The Caucasian species, *G. gymnocaulon* and *G. ibericum*, are beautiful, with their rich purple blossoms, 2 inches across, delicately pencilled with black. *G. platypetalum*, *striatum*, *ibericum*, and *Lamberti* are suited for shrubbery borders, and most of them are free and vigorous enough for naturalisation. *G. Endressi*, with light rose-coloured blossoms, is also very attractive. Much the handsomest of the flowered sorts is the foot-high *G. grandiflorum*, which everybody should grow. All the above-mentioned Geraniums are hardy, easily cultivated, and grow in ordinary soil. The pretty rock garden kinds, *G. cinereum* and *G. argenteum*, are alpine plants, and, unlike stout perennials, they must be associated with very dwarf rock plants. All the Geraniums are increased by seed, and with the exception perhaps of the *G. cinereum*, and *G. argenteum*, all are freely multiplied by division.

GERARDIA.—I have never, either in gardens or in the wild land, or in the Alpine mountains, where beauty of plant life is at its highest, seen anything that struck me more than a Gerardia I once met with in the roadside in New Jersey, growing abundantly here and there like a little tree in habit, 15 inches to 18 inches high, bearing most graceful miniature Pentstemon-like flowers, but far more refined in colour and distinct in form than any Pentstemon. Naturally I asked why such a plant was not in cultivation, and learnt that the Gerardias are mostly parasites on the roots of other plants. In spite of this, I brought home some seed of one or two kinds and sowed it where I thought it would have some chance, but nothing ever came of it. Gerardia, a genus called after John Gerard, who wrote the famous Herbal in the time of Queen Elizabeth, is, as a group, of the highest interest. I hope that some of them may be introduced. *G. tenuifolia* is a species long known, which thrives in the open, and forms charming tufts covered with pretty flowers in summer. It is dwarf and bushy in habit, light and graceful in effect with its numerous pale blue flowers.

GEUM.—Dwarf handsome perennial herbs, *G. montanum* being one of the best of the dwarf kinds for the rock garden, and very beautiful when well established in early spring. It has a compact habit, the leaves lying close on the ground, the erect stems of solitary clear yellow flowers being abundant. It likes plenty of moisture. *G. reptans* is also a pretty rock plant, differing from *G. montanum* in its finely-cut leaves, large flowers, and in producing stolons, which are absent in *G. montanum*. There is a variety, however, of the latter which is by far the most ornamental plant of the European kinds. It is of a very

vigorous habit, with large, fine leaves, and bears freely deep yellow flowers on each stem. This form has been cultivated in the Liverpool Botanic Garden for over twenty years, and is said to be of garden origin.

G. CHILOENSE.—*G. chiloense grandiflorum* is one of the best single-flowered forms in the group. A native of Chiloe, introduced to cultivation somewhere about 1826, it is a magnificent border plant, its dazzling scarlet flowers and bold habit making it a favourite with all who love brilliant patches in their mixed borders. The double-flowered form of this seems to be a more general favourite, the blooms lasting longer, though I think they lack the elegance of those of the simpler form. The variety Mrs J. Bradshaw is an improvement on the old double. They begin to expand soon after May, and continue until October.

G. CHILOENSE VAR. MINIATUM.—This plant, figured in *The Garden* in 1890, is said to have originated in the nursery of Robert Parker at Tooting, and was named by him *G. miniatum*. Another plant known as the Altrincham variety, or *G. hybridum*, was raised about the same time, but, unless in the flowers being brighter, I see no difference. But there can be no question as to the value of this plant, its robust constitution standing it in good stead in almost every kind of soil. It flowers from April until the end of July, and when doing well often attains a height of from 2 to 3 feet.

G. COCCINEUM is a rare and entirely different plant. A native of Mount Olympus.

G. HELDREICHI MAGNIFICUM.—Splendid in colour as any orange flower, I like this for Heldreich's sake as well as its own, as I once spent a few pleasant days with him near Athens in the time of Windflowers that clothe the fields there.

GILIA.—Hardy Californian annuals, 1 to 2 feet high, and bearing for a long time a succession of blossoms either blue, white, lavender, or rose-coloured. Seed may be sown in autumn for spring blooming, and in April for summer and autumn blooming; and the soil should be light and rich. The best are *G. achilleæfolia* (blue), *G. a. alba* (white), *G. capitata* (lavender), *G. tricolor* (white and purple), *G. rosea splendens* (rose), *G. nivalis* (white), *G. liniflora*, *G. dianthoides*, and *G. laciniata*.

GILLENIA.—*G. trifoliata* is a Spiræa-like plant with numerous erect slender stems, about 2 feet high, and branching in the upper part into a loose panicle of white flowers. Distinct and graceful; is of value for the garden, growing in free loamy soil, and may be given a place in the shrubbery or in the wild garden. N. America. Division.

G. STIPULACEA.—This is a rather taller plant, and not quite so compact in habit, but it is graceful, and no more charming plant could be introduced to parts of the garden where there is an extra amount of moisture and a little shade from mid-day sun.

GLADIOLUS (*Sword Lily*).—Beautiful bulbous plants, the best kinds natives of S. Africa. *G. gandavensis* and *brenchleyensis* are the principal kinds from which the hybrids come, and are by far the most important class. The *gandavensis* section suffers from cold autumn rains, and the bulbs must be lifted in autumn.

They are happy in clumps between Dahlias, Phloxes, Roses, and subjects of a somewhat similar character, and are very effective in clumps alternating with Tritomas, and also when associated with masses of Cannas; while they are suitable for intermixing with American plants whose dark foliage shows off rich flowers to good advantage. The position should be marked out and prepared in the autumn or winter. March and April are the best months for planting Gladioli; they are then at their best during August and the early part of September. A succession of planting is desirable to secure a late bloom. Those who desire their gardens to be beautiful late in the autumn should not fail to employ the Gladiolus largely. A deep loamy soil, not too heavy, is the most suitable, but very satisfactory results may even be obtained by deep digging and liberal manuring in poor soils. After the manure is spread over the surface, trench the soil up to a depth of 2 feet, and leave the ground as rough as possible, so as to expose it to winter frost and rain. If this is done the soil will be fit for working in spring, and a pricking over with the fork will reduce it to a fine tilth, and will admit of the bulbs being planted promptly. Planting in March and until June, at intervals of a fortnight. By this there will be obtained a succession of bloom, from the earliest moment at which the show varieties may be had in flower until the end of the season. As soon as the plants have made sufficient progress to require support, stout stakes should be put to them. The

top of the stake must not be higher than the first bloom, and the stem should have one tie only—a strong one of bast.

EARLY-FLOWERING KINDS.—During the past few years the early-flowering Gladioli have become popular on account of their great value for cutting. These, the dwarfer kinds, are, moreover, much the hardiest, and beds of them may be left unprotected during winter, so as to afford early flowers for cutting, for unless the weather is very severe, these beds never require any covering. This remark applies only to bulbs established in the ground, for fresh bulbs are as tender as other Gladioli, and must be protected from frost. Amateurs often make a mistake in this matter. Many plants are hardy only after they are well established. *G. Colvillei* is one of the prettiest and hardiest of all, and is most valuable for cutting, particularly the white variety, which has many beautiful white flowers in early summer. The time of flowering depends upon the time of planting, but the dwarf sections are the earliest. If the varieties of *G. ramosus* are planted at the same time as the dwarfs, the dwarfs are in flower a fortnight before the others.

These early-flowering kinds are of simple culture, and succeed best in well-drained raised beds of good loamy soil, in a sunny position.

G. PRIMULINUS.—One of the best is *G. primulinus* which has been proved to be perfectly hardy here, and by leaving the corms in the open all the Winter we find them increase freely. The varieties, which are numerous, embrace a charming range of soft and pleasing colours.

G. PRINCEPS is the latest gain amongst the hybrids of garden value. Its flowers of crimson-scarlet are intense in colour, of great size, and fine form. The brightness of the flower is relieved by touches of white, or frequently by a white stripe across the centre of the lower petals, which are very full and rounded. It flowers late in August and September, when other kinds are on the wane. Though expanding in slow succession, and never having more than three or four blooms open at the same time, the size and quality of its flowers do much to make up for this.

A few of the wild species almost equal the hybrids in beauty. One of the finest is *G. Saundersi*, about 2 feet high, with large flowers of a brilliant scarlet and a conspicuous pure white centre. It is not often grown, though hardy and of very easy culture, and only requiring a sunny position in a light rich soil.

The European wild Gladioli are pretty plants for the mixed border. There is a strong similarity among them, being from 1 to 1½ feet high, and all bearing rather small rosy-purple flowers. The best known are *G. byzantinus, communis, segetus, illyricus, neglectus, serotinus.* They like warm dry soil and a sunny situation. They are of particular interest from their free and hardy habit, which makes them as easy to grow as native plants. They are admirable for the wild garden, as they thrive in copses, open warm woods, in snug spots in broken hedgerow banks, and on fringes of shrubbery in the garden.

GLAUCIUM (*Horned Poppy*).—Plants of the Poppy family, usually biennials. *G. luteum* is quite hardy and has handsome silver foliage. The leaves are deeply cut, and, planted close, are effective either in masses or lines. To ensure strong plants for winter borders or beds, seed should be sown about May, as the plant is a biennial. When in bloom it makes a striking border plant, the flowers being large and orange-red. *G. Fischeri* is a handsome plant; its snow-white woolly foliage is very telling, and its blossom is of an unusual flame colour. *G. corniculatum* is similar, but not so handsome. Both require the same treatment as *G. luteum.*

GLEDITSCHIA TRIACANTHOS (*Honey Locust*).—A graceful and stately tree sometimes mistaken for the Robinia. Good trees of it in the Thames valley proves its hardiness. In its own land bears numerous large pods, but rarely in ours. My plantings of many young trees were injured by rabbits, they have a passion for young plants of it. N. America.

GLOBULARIA (*Globe Daisy*).—Interesting and dwarf alpine plants, good on the rock garden in light and peaty soils. *G. Alypum* is among the best; it inhabits dry rocks. Other kinds are *G. cordifolia, G. nana, G. nudicaulis,* and *G. trichosantha.* All are blue flowered.

GOODYERA (*Rattlesnake Plantain*).—A beautiful little Orchid, *G. pubescens* having leaves close to the ground, delicately veined with silver; hardy,

distinct, and charming, though its flowers are not showy. It has long been grown in botanic and choice collections, thriving in a shady position such as may be found in a good rock garden, in moist peaty soil, with here and there a soft sandstone for its roots to run among. *G. repens* and *Menziesi* are less desirable and much rarer. N. America.

GORDONIA.—Handsome flowering shrubs allied to Camellia, rare in gardens, and in the case of *G. pubescens*, extinct as a wild tree. Most of the species are tender shrubs from Asia, but two fairly hardy kinds will grow in warm and sheltered places of the south, and near the coast. These come from the "Pine Barrens" of Virginia and Florida, a region of sandy peat-bogs made beautiful by dense thickets of *Gordonia Lasianthus* in every stage of growth, from that of a low shrub to trees of 70 feet or more. The long black roots run out just beneath the thin peaty layers, and the ground being covered deep with moss, it remains moist and cool during the hottest summer. *G. pubescens* grew under similar conditions on the banks of the Altamaha River in Georgia, but only two or three plants were ever found, and it seems long since to have disappeared altogether, those to be found in gardens having all come from one tree. They should therefore stand in sunny and sheltered spots, with a constantly moist soil of sandy peat or leaf-mould, and at the same time perfect drainage. I may, however, say that I have never seen Gordonia in flower but once, in a park in Philadelphia many years ago.

G. LASIANTHUS (Loblolly Bay) with us rarely exceeds 10 or 12 feet, growing as a shapely pyramid, with glossy dark green leaves almost evergreen in a mild winter. Before falling they take golden, crimson, and purple tints, which are charming in mid-winter after such tints have mostly disappeared. The fragrant white flowers come in succession from July to September, their broad-cupped petals set off by golden stamens.

G. PUBESCENS is similar in general effect, but loses its leaves in winter and is smaller, hardly exceeding a low shrub with us. It may be known by its thinner leaves coated underneath with a pale down, the shorter stems of its hairy flowers, and the thin smooth bark of the stems. The flowers are larger and less fragrant than in *G. Lasianthus*, 3 inches or more across; in the States they come early in August, but with us not much before September, and beginning late they are less abundant. The leaves turn a fine scarlet in autumn. While somewhat hardier than the Loblolly Bay, it is perhaps more difficult to manage in other ways.

GRAMMANTHES. — A pretty half-hardy annual, *G. gentianoides* being a capital plant for the dry parts of a rock garden, about 2 inches high, forming a dense tuft, with fleshy leaves about ½ inch long, and many flowers about ⅔ inch across; orange when first expanded, with a distinct **V**-shaped mark at the base of each petal, but finally assuming a deep red. Seeds should be sown in heat in February and March, and the seedlings planted out in May. Stonecrop family. S. Africa.

GREVILLEA.—Australian shrubs, few are hardy enough for wall culture; and *G. sulphurea*, the hardiest in cultivation, lives against walls about London. Its pale yellow flowers, of curious shape, as in all Grevilleas, come throughout the summer. *G. rosmarinifolia* is another hardy kind with Rosemary-like leaves and clusters of red flowers.

GRISELINIA.—There are certain exposed spots in our shore gardens where even the toughest of shrubs are apt to fail, and in this little group we have the best of all plants for such a position, thriving in any soil, and sea-wind proof. The greenish flowers are insignificant, and the fruits, like clusters of small Ivy berries, are seldom seen in this country, but the fleshy leaves are so unlike any others that these are among the most distinct of evergreens. Of compact and fairly rapid growth, they make dense bushes of 6 to 10 feet, freely branched to the ground, and of so good a shape that they may be almost left alone. Hardy as they are far into the north and near the sea, the Griselinias fail inland, save in quite the warmest places, and are tender round London. The glossy leaves are always attractive and seldom attacked by insects. There are two species, both from New Zealand:—

G. LITTORALIS.—Reaches a height of 30 feet, with wedge-shaped leaves, greyish beneath, where the veins show very faintly. The appearance of the sexes (which are apart) is very different, the male plant bearing small oval leaves of dark green, with an erect habit, and the female much

larger and broader leaves of yellow-green, and of a more diffuse habit.

G. LUCIDA.—Has very glossy pale green leaves, which are most unevenly divided by the mid-rib. It is of smaller growth than *littoralis*, reaching only 10 to 12 feet, with leaves more fleshy and the veins very distinct on the under side. *G. macrophylla* is a robust natural form of this, with much larger bright green leaves, so thick as to be almost succulent. This makes a handsome bushy tree of 20 to 25 feet in the gardens of Devon and Cornwall.

GUEVINA AVELLANA (*Chilian Nut*).—An evergreen tree of about 30 feet in its native land, and here confined to favoured gardens in Devon and Cornwall, the finest specimen in Britain being probably at Greenway on the River Dart, where it flowers and fruits freely. The blossoms, at their best in September, are carried as erect spikes of about 4 inches, each spike holding about a score of small ivory-white flowers with reflexing petals and protruding stamens. Although freely borne, they are not at all showy, the feature of the tree being its fruits, over 2 inches in circumference, which become red and eventually purple. They contain Almond-like seeds of mild and somewhat oily taste, which are eaten in Chili and Peru, where the fleshy envelope is made a substitute for the Pomegranate. The foliage is very handsome, the great leaves, often 2 feet in length, being divided into many deep green leaflets. Increase by layers and by seeds—which, however, do not germinate freely.

GUNNERA (*Prickly Rhubarb*).—S. American plants remarkable for large and handsome foliage. They are hardy if slightly protected during the winter by a layer of dry leaves placed among the stems. Given any diversity of surface it will be easy to select a spot well open to the sun and yet sheltered by shrubs. In summer the plants ought to have plenty of water, and a ridge of turf should be placed round them, to compel the water to sink down about their roots. They should also have a mulching of well-rotted manure early in every spring. They thrive on the margins of ponds where their roots can penetrate the moist soil, and placed in such a position, they have a fine effect. Though the two kinds *G. scabra* and *G. manicata* greatly resemble each other, the leaves of *G. manicata* are more kidney-shaped and attain a much larger size, often measuring 4 to 6 feet across. The spikes of fruit are also much longer, and the secondary spikes are long and flexuose, whereas in *G. scabra* they are short and stiff. Propagated by seed or division of established plants.

A Gunnera.

G. MANICATA.—Writing from Trelissick,

Truro, Mr W. Sangwin says: "It never attains the extraordinary dimensions it is capable of, unless planted in deep, rich soil, with its roots in the water by the side of a pond or stream. Our plant covers a space fully 30 feet across, and consists of from twenty-five to thirty leaves, some of them over 9 feet in diameter, upon clear stems 8 feet high. The crowns are as large as a man's body, of a delicate pink colour. Flower spikes are produced freely, and should be cut as soon as seen, or they will check the growth of the leaves. When they die down in autumn, the leaves should be placed loosely over the crowns, with their stems on top to prevent them being blown away by the wind." These plants have attraction, but I never planted them, as they did not seem to be quite at home in an English garden.

GYNERIUM (*Pampas Grass*).—This noble grass, *G. argenteum*, 6 to 14 feet high, according to soil or district, is most precious for our gardens, but in many districts suffers from our severe winters, and we seldom now see the fine plants of it that were not uncommon soon after its introduction. Some varieties are better in habit than others, and flower earlier, and it would be better to patiently divide such than to trust to seedlings. There are various interesting varieties; *Rendatleri*, a roseate form, is very free. No plant better repays a thorough preparation, and we rarely see such fine specimens as in quiet nooks where it is sheltered by the surrounding vegetation. It should be planted about the beginning of April in deep open soil mulched with rotten manure, and watered copiously in hot dry weather. *G. jubatum* is very well spoken of, but as yet has not been tried much except in favoured spots. The leaves resemble those of *G. argenteum*, but are of deeper green, and droop elegantly at the extremities. From the centre of the tuft, and exceeding it by 2 or 3 feet, arise numerous stems, each bearing an immense loose panicle of long filamentous silvery flowers, of a rosy tint with silvery sheen. It is a native of Ecuador, and is earlier in bloom than *G. argenteum*. The sexes are borne on separate plants in all the species, and the plumes of male flowers are neither so handsome nor so durable as the plumes of female flowers. Syn. *Cortaderia*.

GYPSOPHILA. — Plants of the Stitchwort family, the larger kinds usually very elegant, and bearing myriads of tiny white blossoms on slender spreading panicles. One of the best is *G. paniculata*, which forms a dense compact bush, 3 feet or more high, the numerous flowers small white, on thread-like stalks on much-branched stems, with the light, airy effect of certain grasses, and very useful for cutting. It thrives in any soil, and is suitable for borders and for naturalisation. There is a double variety. *G. acutifolia, altissima, fastigiata, glauca, mangini, perfoliata, Rokejeka, Steveni, transylvania* are very similar. *G. prostrata* is a pretty species for the

Gypsophila cerastioides.

rock garden or the mixed border. It grows in spreading masses, and from midsummer to September has loose graceful panicles of small white or pink flowers on slender stems. Division, seeds, or cuttings in spring. *G. repens rosea* is a pretty dwarf rock plant, thriving also in borders; flowering long in summer and autumn, and with foliage of a pleasant glaucous colour. *G. elegans* is a graceful feathery annual much used for bouquets.

HABENARIA (*Rein Orchis*).—Terrestrial Orchids from N. America, 1 to 2 feet high, some of which are pretty. For outdoor culture, a partially-shaded spot should be prepared with about equal parts of leaf-mould or peat and sand, and well mulched with leaves, grass, or other material, to keep it moist. *H. blephariglottis* bears in July spikes of white flowers beautifully fringed. *H. ciliaris* has bright orange-yellow flowers with a conspicuous fringe, which appear from July to September. *H. fimbriata* has a long spike of lilac-purple flowers beautifully fringed. *H. psycodes* bears spikes 4 to 10 inches long of handsome and fragrant purple flowers. They are charming plants for the bog garden.

HABERLEA.—*H. rhodopensis* is a pretty little rock plant with flowers resembling a Gloxinia in miniature, forming dense tufts of leaves, every rosette bearing in spring one to five slender flower-stalks, each with two to four blossoms, nearly 1 inch long, of a bluish-lilac colour with a yellowish throat. The typical species is a shy bloomer. Quite the best of the coloured forms is that known as *Ferdinandi Coburgii*, the flowers being much larger and more freely produced. Imported examples show considerable variety, both in habit and flower—the outcome, as it would appear, of natural crosses. A choice and rare sort is the pure white-flowered *H. virginalis*. In cultivation, all the Haberleas are happy in cool shaded places between rocks in deep sandy loam, or with peat added. Dryness they abhor. Flowers in May and June. Best increased by seeds, sown as soon as ripe. Native of the Balkan Mountains, where they are found among moss and leaves on damp, shady, steep declivities at high elevations.

HABRANTHUS.—A brilliant bulb of the Amaryllis family, hardy, at least in the southern and eastern parts of the country. *H. pratensis* has stout and erect flower-stems, about 1 foot high, and the brightest scarlet flowers, feathered here and there at the base with yellow. The variety *fulgens* is the finest form. It blooms freely in the open border of the Rev. Mr Nelson's garden at Aldborough, in Norfolk, flowering at the end of May or beginning of June. It grows very freely in strong loam improved by the addition of a little leaf-mould and sand. Its propagation is too easy, for in many soils it is said to split up into offsets instead of growing to a flowering size. A choice plant for the select bulb garden or rock garden, but dies out in heavy soil, thriving in calcareous soils. Chili.

HALESIA (*Snowdrop Tree*).—Beautiful N. American trees, hardy in this country. The commonest is *H. tetraptera*, one of the prettiest of flowering trees. It grows in England from 20 to 30 feet high, has a rounded head, with sharply-toothed leaves, in May bearing many white blossoms, in form like the Snowdrop, hence its popular name. It is of moderately rapid growth, and flourishes in any good, free soil. In some parts it ripens its seed. A similar species distinguished in having but two wings to the seed-vessel (*tetraptera* having four), is *H. diptera*, of smaller growth, and not such a suitable tree for this climate; neither is *H. parviflora*, which, like the others, has small bell-like flowers.

The Snowdrop Tree is very slow, and grows and flowers badly on heavy, cold soils; on free, sandy loams it grows freely and flowers abundantly, and in that case is the most beautiful of flowering trees.

H. HISPIDA.—The best examples of the tree I know of are in the neighbourhood of Cork and Queenstown, but mild climatic conditions such as they exist under there are not essential to their well-being. The pure white fragrant flowers open in June and July on pendulous panicles, 6 to 9 inches long, that hang in a row beneath the branches, one from each joint. The curious fruits are spindle-shaped and covered with pale brown hairs.

H. TETRAPTERA, VAR. MONTICOLA.—This grows at low altitudes, and does not appear to ascend to the slopes of the high Appalachian mountains, although the Halesia of those mountain forests was long considered identical with the lowland tree. The Halesia of the high slopes, however, is a tree often 80 or 90 feet high, with a trunk 3 feet in diameter, sometimes free of branches for a distance of 60 feet from the ground. Young trees are clean stemmed with short branches, which form a narrow pyramidal head. The leaves are of rather different shape and less hairy than those of the lowland tree; the flowers are fully a third larger, and the fruit is nearly twice as large. Trees less than 10 feet high produce flowers and fruit freely.

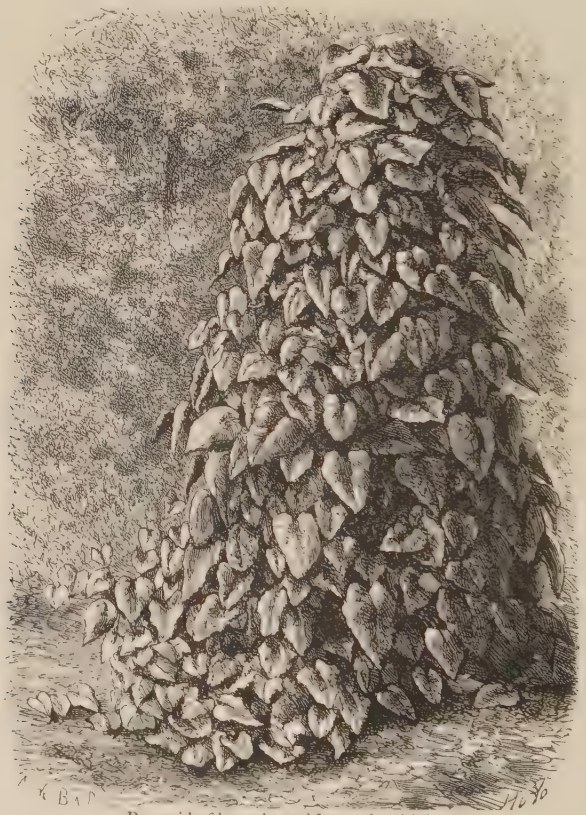
HALIMONDENDRON (*Salt Tree*).—*H. argenteum* is a small shrub belonging to the Pea family, with elegant leaves, silky and whitish, the flowers purplish in early summer; a native of Asiatic Russia, it is hardy, grows from 5 to 6 feet high, and sometimes is grafted on to the tall stems of the Laburnum.

HAMAMELIS (*Witch Hazel*).—Hardy shrub with singular blossoms flowering in winter. They have a peculiar value as winter-flowering shrubs, and several are worth planting in all good gardens. *H. arborea*, or Tree Witch Hazel, does not rise generally above 8 feet high. In January, and sometimes before, its leafless branches are covered with flowers, which have twisted, bright yellow petals and crimson calyces, so that a

well-flowered plant is very pretty. It is a hardy Japanese shrub, and thrives in most kinds of soil, but must have an open situation. Another Japanese species is *H. japonica*, a smaller and dwarfer plant than *H. arborea*, and bearing flowers of a lighter yellow colour, while that called *H. zuccariniana* is very similar to it. Though not so showy when in flower as the Japanese species, it is a pretty shrub, and like the others, thrives in any soil.

H. VIRGINICA.—The Virginian Witch Hazel is really a beautiful hardy tree, and charming in October even in poor stiff soil.

HEDERA (*Ivy*).—*H. helix* is the most beautiful evergreen climber of our northern and temperate world, and is a noble garden plant that may be used in many ways. The common Ivy of the woods is familiar to all,



Pyramid of large-leaved Ivy, 7 feet high.

H. MOLLIS.—The best kind so far. It is hardy in England and grows freely. It differs from the other kinds in its much larger leaves, 5 inches long by 3 inches wide, of a distinct shape, and covered on the under side with a dense felt-like coating of hairs (hence the name). Its flowers resemble those of the Japanese kinds, but the yellow petals are somewhat larger and less waved. The flowers are the brightest of all the forms in colour.

H. RULERA is, in the colour of its flowers, quite distinct from the others of this family. It blooms about the second week in January when the twigs are laden with orange and deep red centred flowers.

but its many beautiful varieties are not so often seen. All are not of the same vigorous habit, as will easily be seen by cultivating a collection; but the rich, self, green-leaved kinds are usually as free and as hardy as the wild plant. If we want Ivies in their fullest beauty, it is necessary to pay some attention to position, soil, and training. This applies to all kinds, but especially to the more delicate varieties. Ordinary garden soil will grow the Ivy well, and the strong growers will thrive in ordinary soil.

It is better to plant choice kinds as edgings to a bed of shrubs, or permit them to clamber over a root-stump, arbour, or form a pyramid of them, where they will be less exposed to the full force of wind than if they were stiffly trained on walls. A word should be said for Tree Ivies, which make fine bushes in the garden, and may be associated with other shrubs in beds. Healthy plants make dense rounded heads of foliage, relieved during the blooming season with many flowers. By far the most important Ivies, however, are the green-leaved forms—many, various, and nearly all beautiful in form. Whatever kinds among these we may prefer, a fuller and more graceful use of the Ivy in or near the flower garden and its surroundings is desirable.

IVY AS A DESTROYER.—There is hardly an old ruin in England or in N. France that does not bear evidence of Ivy being the most destructive of plants. It seeds itself in the most insidious way in places where it is not wanted. Still, as the most graceful of hardy climbers of the Western world, there must be some place found for it where it cannot ruin; but never on any house, castle, or cottage should it be planted—not even on a shed. It grows when we are asleep, and gets its roots under tiles and walls, and tears off roofs. If we want a climber on the house, there are better things than Ivy as regards flower which will do no harm (Rose Vine and Clematis). There are still many places where Ivy can do no harm, and is very charming on trees—I never cut it off trees—rocks and river banks, shelters, bowers in the pleasure garden, when these have strong iron supports, and often as screens on strong trellis-work, pyramids also, and anywhere so long as it is away from any kind of building.

HEDYSARUM (*French Honeysuckle*).—Plants of the Pea order, mostly weedy, only a few perennials being ornamental. *H. coronarium* is a showy plant, 3 or 4 feet high, bearing in summer dense spikes of red flowers. It grows in any ordinary soil, but is not a perennial, though it usually sows itself where it is established. There is a white variety. Among the dwarfer kinds the following is desirable: *H. obscurum*, a brilliant and compact perennial; 6 to 12 inches high, with racemes of showy purple flowers. It is suitable for the rock garden, for borders, and for naturalisation amongst vegetation not more than 1 foot high, chiefly on banks and slopes in sandy loam, and is increased by division or seed.

HELENIUM (*Sneeze-weed*).—Vigorous and showy plants, flowering in autumn, and thriving in any soil, and, where rightly used, excellent plants. There are two or three species, the most useful being *H. autumnale*, about 6 feet high, bearing yellow flower-heads. The varieties *grandiceps* and *pumilum* are very distinct: *grandiceps* being of gigantic growth with a fasciated head of bloom, which makes it very showy; *pumilum* being much dwarfer and better than the type. The variety *magnificum* is the best. *H. atro-purpureum* grows 3 or 4 feet high, and has reddish-brown flower-heads. *H. Hoopesi* flowers in early summer, but is a rather coarse grower, with large orange-yellow flowers. The best modern varieties are *H. autumnale rubrum*, *H. a. superbum*, and *H. a. Riverton Gem*, which, producing great masses of crimson and yellow flowers, grows 5 to 6 feet high. All are very useful for cutting, and remain a long time fresh. N. America.

HELIANTHEMUM (*Sun Rose*).—There are few more brilliant sights than masses of these when in full beauty, and they are of the easiest culture, dwarf, and bearing in great profusion flowers with fine diversity of colour. The common Sun Rose (*H. vulgare*) is variable in colour, and from it have sprung the many varieties. The colours range from white and yellow to deep crimson. There are also double-flowered kinds and one with variegated foliage. Other pretty, dwarf, shrubby species, similar to *H. vulgare*, are *H. rosmarinifolium*, *philosum*, and *croceum*. There is also a herbaceous perennial species. *H. Tuberaria* (Truffle Sun Rose), which in aspect differs from the shrubby species, and is second to none in beauty. It grows 6 to 12 inches high, with flowers 2 inches across, resembling a single yellow Rose, with dark centre, and drooping when in bud. It is suited for warm ledges on the rock garden in well-drained sandy or calcareous soil. It is propagated by either seed or division. If a full collection is required there are other species, but the above fairly represent the beauty of the family. The shrubby

kinds are easily increased in July and August if young shoots are used as cuttings.

HELIANTHUS (*Sunflower*).—Usually stout, vigorous, and showy plants, abounding in N. America, of which not a few have found their way into English gardens. All the perennials are vigorous growers, and generally attain a great height, being most precious for the autumnal garden when well placed. Sunflowers may be cultivated with the greatest ease; they are gross feeders, and the richer the soil the better the result. All are benefited by periodical division and replanting in spring.

H. ORGYALIS, though a small-flowered plant, is yet one of the best for the picturesque garden. It is one of the late-flowering species, and is often damaged by early frosts. It grows from 6 to 10 feet high, having numerous linear leaves and bunches of deep golden-yellow flowers. It is a native of dry plains of Nebraska and Texas.

Helianthemum formosus.

H. DECAPETALUS.—One of the best species in the whole genus as a background to mixed borders, or as a feature in open shrubberies. It forms large, bushy plants 4 to 6 feet in height, with strong, much-branched stems, rough on the upper half and usually quite smooth on the lower.

H. GIGANTEUS.—A very tall, elegant plant. The stems often exceed 10 to 12 feet high, the leaves narrow, tapering to both ends; the flowers deep yellow, 2 to 3 inches in diameter. It is one of the latest to flower, and has been found variable under cultivation, giving rise to several garden names. Moist ground. N. America.

H. MULTIFLORUS.—It is so very distinct from all the other species so well known in gardens, and such a good all-round plant, that it well deserves a place. It rarely exceeds 3 to 5 feet in height, producing numerous large fine rich yellow flowers, remaining a considerable time in good form. The var. *maximus* has larger flowers with more pointed rays, and the varieties *plenus* and Soleil d'Or are both very desirable double-flowered forms. From the garden standpoint, the varieties of *H. multiflorus* rank high, and should be grown by all.

H. RIGIDUS (Primrose Sunflower).—This distinct, though variable, species is perhaps the best known of all the Perennial Sunflowers. It grows from 4 to 5 feet in height, with a rough stem, the upper leaves always alternate, distinctly three-nerved and veined. The flowers, bright yellow and very showy, are produced very freely. It is a native of the plains and prairies of Georgia and Texas. H. r. Miss Mellish is one of the best varieties.

H. SPARSIFOLIUS.—A giant among perennial kinds, and a late-flowering sort to boot. Flowers golden-yellow. October-November.

H. TOMENTOSUS.—A beautiful and distinct species of bushy habit, having silvery downy foliage. The golden-orange flowers are produced freely in September. Height, 4 feet.

The larger kinds of annual Sunflowers are noble plants, requiring plenty of space, a sheltered position, and a good background. They are easily raised from seed, which may be sown in pans in early March or in the open air in April, where they are intended to flower, and thinned out to a yard apart.

H. ANNUUS (Common Sunflower).—Although often regarded only as a cottagers' flower, the Annual Sunflower is one of the noblest plants we have, and one of the most effective for various positions. In order to dispense with support, it should be planted in a sheltered place, as among tall shrubs. Here it assumes a dense branching tree-like habit,

Double Perennial Sunflower.

and often produces flowers each over a foot in diameter. It requires a strong rich soil. There are many varieties, the most notable being one called *californicus*, a more robust and darker-flowered form. *H. Dammanni* and *H. D. var. sulphureus* are said to be garden hybrids between *H. argophyllus* and *H. annuus*. *H. cucumerifolius*, the Miniature Sunflower, is a good annual, growing from 2 to 3 feet high, usually with purple mottling on the stems, the leaves thin, and bright apple-green. The stems are much branched, and when allowed plenty of room the plants form perfect symmetrical specimens. The flowers are yellow, about 3 inches in diameter, nicely set off with the almost black disc. Sandy soils in woods from Texas westwards.

H. PETIOLARIS.—A fine kind rarely seen in gardens, though from its neat habit and profusion of flowers it should be a welcome addition to the mixed border. It grows about a yard high, loosely branched, the stem as well as the leaves being covered with stiff hairs; flowers yellow, 3 to 4 inches in diameter. The variety *canescens* is covered with white pubescence. Texas.

H. SCABERRIMUS.—A very distinct plant with large deep yellow flowers, stout branching stems, and broad, oval, coarsely-toothed leaves. California.

HELICHRYSUM (*Everlasting Flower*).—Composites, mostly natives of the Cape of Good Hope, of which a few are cultivated. The most important garden plants are *H. macranthum* and *H. bracteatum*. They are generally treated as annuals, and, unless exceptionally well managed by being sown early under glass, they commence flowering so late that the best period for laying on the brightest colours is lost, and early frosts find them just approaching their best. They are particularly suited for background plants on dry borders. If they are sown in pans or boxes where they can be slightly protected during winter, and are planted out early in April, they have a chance of producing a good crop of flowers for drying. The colours vary from deep crimson to yellow and white. The hardy perennials are not important, and seldom succeed. *H. orientale*, which furnishes the Immortelle of the French, flowers poorly except in very hot seasons. Hardy kinds worth growing are *H. arenarium*, flowers bright yellow; *H. bellidioides*, mats of grey-green studded in May with white flowers; *H. frigidum*, a tiny grey plant with white flowers; and *H. rupestra*, whose silvery foliage is usually retained during winter.

HELIOTROPIUM (*Cherry Pie*).—A great favourite on account of its fragrance. For the flower garden spring-struck plants are the best. It is a good plan to take root cuttings in August or September, winter them in a greenhouse, and in spring to put them in a warm place, where they will soon produce plenty of cuttings. These cuttings may be struck on slight heat like Verbenas, potted on, made to grow rapidly, so as to be fit to plant out at the end of May when danger of frost is past. Heliotropes may be raised from seed and flowered the same year;

in fact, treated as annuals. Sown early—in February or the beginning of March—they become sturdy little plants before planting time. When bedded out they should be placed in good dry soil. The following are good varieties, and new varieties are raised from time to time: Anna Turrell, General Garfield, Roi des Noirs, Triomphe de Liége, and the old *H. peruvianum*, which many like from its associations, if for no other reason. Heliotropes, though quiet in colour, are charming flowers. In cold soils and upland districts they are very slow at starting if not brought on and hardened off before being planted out in early June, and even then the growth is very slow, and the plant does much better in valley soils and sheltered gardens.

HELLEBORUS (*Christmas Rose*).—One of the most valuable classes of hardy perennials we have, as they flower in the open air when there is little else in bloom. They appear in succession from October till April, beginning with the Christmas Rose (*H. niger*), and ending with the handsome crimson kinds. The old white Christmas Rose is well known and much admired, but the handsome kinds with coloured flowers have, hitherto, not been much known.

The Hellebores, besides being excellent border flowers, are suited for naturalising. There are a few kinds—those with inconspicuous flowers, but handsome foliage—whose only place is the wild garden, such as the native *H. fœtidus*, *H. lividus*, *viridus*, and *H. Bocconi*, which have elegant foliage when well developed in a shady place in rich soil, like that usually found in woods. The Hellebores may be classed in three groups, according to the colour of the flowers—white, red, or green, which last will get little place in the garden. The white-flowered group is the most important, as it contains the beautiful old Christmas Rose.

H. niger is a well-known kind, scarcely needing description. It may be recognised at once by its pale green smooth leathery leaves, divided into seven or nine segments, 3 to 6 inches long and 1 to 2 inches broad. The flowers, which are usually borne singly on stems 6 inches long, are about 3 inches across, and vary from a waxy-white to a delicate blush tint. The variety *minor* is smaller in every part, and is also known as *H. angustifolius*. *H. altifolius*, though sometimes considered a variety of *H. niger*, is a distinct kind, and much larger than *H. niger*. It has leaf-stalks over 1 foot long, and blossoms 3 to 5 inches across, which are borne on branching stems, each stem bearing from two to seven flowers, which have a stronger tendency to assume a rosy hue than the ordinary kind. Another characteristic is that the leaf and flower-stems are beautifully mottled with purple and green, while in *H. niger* they are of a pale green. *H. altifolius* also flowers much earlier—in some seasons in the beginning of October. The Riverston, St Brigids, Mme. Fourcade and Bath varieties are all good.

H. Corsicus, deserves a place in the garden by reason of its handsome glaucous, glassy and armed leaves and large clusters of pea-green flowers. It succeeds on warm sandy banks.

Other white kinds are *H. olympicus*—a tall slender species with cup-shaped blossoms that appear in early spring and vary from pure white to greenish-white. *H. guttatus* is like it, but has the inside of the blossoms spotted with purple. There are several forms; in some the markings assume the form of small dots, in others of thin streaks. It is one of the parents of the many beautiful hybrids.

The finest of the red or crimson kinds is *H. colchicus*, which is larger than any other, and may be readily recognised by its thick, dark green leaves, with five to seven broad and coarsely-toothed divisions, the veins of which are raised on the under sides and are of a dark purple when young. The blossoms, borne on forked stems rising considerably above the foliage, are dark purple. Under good cultivation the leaves attain the length of 1½ and 2 feet, forming fine specimens, and flowers are produced from the end of January to the end of March.

All the kinds will thrive in ordinary garden soil, but for the choicer kinds a prepared soil is preferable. This should consist of equal parts of good fibry loam and well-decomposed manure, half fibry peat, and half coarse sand. Thorough drainage should always be given, as stagnant moisture is very injurious. A moist and sheltered situation, where they will obtain partial shade, such as the margins of shrubberies, is best, but care should be taken to keep the roots of shrubs from exhausting the border.

In the flowering season a thin mulching of moss or similar material should be placed on the soil round the plants, as this prevents the blossoms from being spattered by heavy rains, etc. Any one beginning to grow these useful plants should give the soil a good preparation. If well trenched and manured, they will not require replanting for at least seven years; but a top-dressing of well-decayed manure and a little liquid manure might be given during the growing season when the plants are making their foliage, as upon the size and substance of the leaves will depend the size of the flowers. The common white Christmas Rose is a favourite pot-plant, and if required for potting its foliage should be protected from injury; when the blooming season is over it should be protected by a frame until genial weather permits it to be plunged in the open air.

Propagation may be effected by division or by seeds, which, in favourable seasons, are plentiful; as soon as thoroughly ripened they should be sown in pans under glass, for they soon lose their vitality. As soon as the seedlings are large enough they should be pricked off thickly into a shady border, in a light rich soil; the second year they should be transplanted to their permanent place, and in the third season most of them will bloom. In division the clumps must be well established, with root-stocks large enough to cut up. The divided plants, if placed in a bed of good light soil,

Christmas Rose.

and undisturbed, will be good flowering plants in a couple of years, but four years are required to bring a Christmas Rose to perfection. The best time for dividing and planting is September and October, the earlier the better, though the season might be extended to February with comparative impunity. Christmas Roses should never be transplanted in big clumps intact—nothing is more fatal to success. Well-rooted divisions of three to five crowns apiece are amply large, and soon take to the new conditions.

HELONIAS (*Stud Flower*).—A distinct and handsome bog perennial, *H. bullata* being 12 to 16 inches high, with handsome purplish-rose flowers in an oval spike. It is suitable for the bog garden or for moist ground near a rivulet. In fine sandy and very moist soil it thrives as a border plant. N. America. Syn. *H. latifolia*.

HELONIOPSIS. — Dwarf perennial plants of the Lily order, from Japan, forming neat tufts of erect lance-shaped leaves of a few inches high, and carrying short spikes of flower in early spring. In *H. breviscapa* they are 6 or 8 inches long, white with deep lilac stamens, the whole turning a pretty rose-red before fading. In *H. japonica* the flowers are larger, but only two or three on a stalk, their colour a deep rose with blue anthers. The plants thrive in moist peaty soil and in sunny sheltered nooks; *H. breviscapa* also does well in partial shade. Increase by division late in summer, or seeds sown in a cold frame.

HEMEROCALLIS (*Day Lily*).—The Day Lilies, though not numbering many distinct species, are varied both in habit and flower, and are very useful in the mixed border and in groups by the water-side. Few plants surpass a strong, well-flowered clump of *Hemerocallis fulva*, as we have seen it, mixed with a group of male Fern near a brook. The leaves of this Day Lily were overhanging the banks of the stream, intermingled with the Fern fronds, while the flower-heads, tall and straight, were towering upwards. If the ground is well broken up and some lasting manure supplied at planting time, they may be left undisturbed for years. The forms of *H. disticha*, both single and double, are also useful for clumps by water, or intermixed with other robust or bold-foliaged plants; indeed, there seems no reason why all the Day Lilies could not be treated in this picturesque way, the trouble entailed being small, and that chiefly at planting time only. For cutting, *H. flava*, *minor*, and *Dumortieri* are useful, the flowers lasting a few days and the buds opening well in water. The fragrance of these flowers is delightful; they are readily increased by division, and grow with such rapidity that in the course of a few years they may be increased to almost any extent.

The following are the species as they are now recognised, with the principal varieties :—

Yellow Day Lily (*Hemerocallis flava*).

H. AURANTIACA MAJOR.—This is the name given by Mr Baker, of Kew, to a new and handsome kind from Japan, and of which a coloured plate was given in *The Garden*, 23rd November 1895. It is one of the finest new hardy plants of recent years, and reminds one of *H. fulva* (syn. *H. disticha*). The new kind has bold leafage, a glaucous tinge overlying the

deep green body colour; the flowers, of a rich apricot colour, open out widely, and are of great substance.

H. DUMORTIERI (Dumortier's Day Lily).—This valuable kind is the first to flower of all the Day Lilies. Coming from Japan and W. Siberia, it is hardy in the open air, requires no protection during winter, and we have never known it fail to bear freely its charming and fragrant flowers. The blooms are short-lived, but the reserves are so numerous as to keep up the succession for a long time. This Day Lily dwindles in vigour of the plants and size of the flowers if allowed to remain too long in one place. If the plants are examined, the centres will be found to be matted together, the stronger shoots appearing on the outside. If the plant is divided and replanted it will amply repay the trouble by increased vigour and larger flowers. It is closely allied to *H. minor*, also known as *H. graminea*, but it is a much stronger plant, however, with leaves twice as broad, the flower-stems short, and the divisions of the perianth divided almost or entirely to their base. The leaves are about five or six to a growth, about 18 inches long and half an inch broad, bright green above, and pale but not glaucous on the under surface; flower-stem 1 to 2 feet in height, bearing a corymb of large orange-yellow flowers. *H. rutilans* and *Sieboldi* of gardens belong to the same species.

H. FLAVA (Yellow Day Lily).—Few plants can be grown with so little trouble in the border, and give such a valuable return as this one—the flowers large and in such quantities, emitting such an agreeable fragrance, as to earn the name of *yellow* Tuberose. The length of time the flowers last enhances its value as a border plant. It is hardy, and though not so robust in habit as *H. fulva*, it increases rapidly, and where the soil is good, might be naturalised. On banks the beautiful light green curving leaves hang gracefully, surmounted by bunches of large yellow heads of flower in June and July. Europe and N. Asia. *H. Thunbergi* and *japonica* are forms of this species.

H. FULVA (Copper-coloured Day Lily) is a much larger plant than *H. flava*, and more suitable for extensive planting in semi-wild or rough parts of the garden. It is variable under cultivation, and the numerous forms now grown, many without names, are all worthy of attention. *H. disticha* is a well-known garden variety of this species, notable for the fan-like form of its growths. The flower-stem is forked near the summit, and carries two or three heads of flowers, six to eight blooms on each, of a brown-orange colour.

H. MIDDENDORFIANA.—From Amurland; in appearance resembling *H. Dumortieri;* but the leaves are broader, the flowers about the same size, closer, and paler in colour, and with a distinct cylindrical tube half an inch or so long. It is of easy cultivation.

H. MINOR.—Known in many gardens under the name of *H. graminea*, from its grass-like foliage, was formerly classed by the older botanists as a variety of *H. flava*, though now considered distinct. It is the smallest though not the least showy, and, like *flava*, sweetly scented, the flowers lasting two or three days. It makes a handsome plant for a rocky bank, and even when flowers are absent the pretty grass-like leaves are welcome. It flowers during June and July.

HERACLEUM (*Giant Parsnip*).—Perennials, mostly of gigantic growth, having huge spreading leaves and tall flower-stems, with umbelled clusters of small white flowers 1 foot or more across. Though well-developed plants of the large kinds have a fine effect when isolated in copse or wood, they are out of place in the flower garden and suitable only for the rougher parts of pleasure grounds, the banks of rivers or lakes, and other places where they can grow freely without injury to other plants. The finest are *H. giganteum, lanatum, sibiricum, eminens, Wilhelmsi,* and *pubescens*, all of which, when in flower, are 5 to 10 feet high.

Of quite unique presence is the bush-forming *H. Mantegazzianum*, from the Caucasus, which attains to 6 to 7 feet high and a diameter of 8 to 10 feet. In flower or leaf it is the best and most imposing. All are increased by seed.

HERNIARIA.—Dwarf perennial trailers, forming a dense turfy mass, green throughout the year. There are two or three species, but the most important is *H. glabra*, which has been largely used as a carpeting plant on account of its dwarf growth, and it is always a deep green, even in a hot season.

HESPERIS (*Rocket*).—*H. matronalis* is a popular old garden plant, and among the most desirable of hardy flowers. It bears showy, varied, and fragrant flower-spikes. The original single-flowered kind grows 1 to 3 feet high, and has pinkish flowers, but the double kinds are much more valued. There are two distinct forms of the double white Rocket as well as of the double purple Rocket in cultivation. One is a tall white, turning to a pale flesh colour with age; the other is the old white variety, of dwarfer growth, with smaller and more compact

flowers. It is met with in the north, but is little known in the south, where it does not flourish so well as the common variety. There is the old purple double Rocket and a free-growing dwarf form known as Compactness, which has also larger and darker flowers. Rockets require care in cultivating, and will soon be lost if left to themselves. They should be divided at least every second year and transplanted, for they seem to tire of the soil and to require more change than most perennials. Double Rockets really belong to the garden plants requiring annual attention, and cannot well be used as true perennials. It is always worth while having a bed of them in the reserve garden in case the plants should be lost or neglected in the borders. We have seen them best grown where there was a yearly transfer of plants from the reserve garden to the mixed border, and the groups look very well. The single Rocket is easily naturalised, and is a showy plant in woods or shrubberies.

H. TRISTIS (Night-scented Stock).—A quaint plant with dull-coloured flowers, sweet-scented at night. It is rather tender, and requires a light warm soil and a sheltered position.

HESPEROCHIRON.—*H. pumilus*, a pretty Californian rock plant, is stemless, dwarf in growth, with leaves borne on slender stalks, forming a rosulate tuft. The flowers are bell-shaped, ½ inch across, and white, varying to a purplish tinge. It grows in marshy ground, and in damp places in the Rocky Mountains and N. Utah, and is apparently quite hardy, as it thrives in ordinary soil in well-drained parts of the rock garden. *H. californicus* is a species of somewhat the same form.

HEUCHERA (*Alum Root*).—A few years ago this little group of hardy perennials was hardly known, and had there not been improvement under cultivation they might well have remained so, many of the wild kinds have little to recommend them save a graceful leaf. Even *H. sanguinea*, however attractive at its best, is not a good plant, dwindling away persistently in many gardens in spite of rich soil and every care. By crossing, however, seedlings have been raised that are more tractable in the garden and not without effect in the border and for cutting. All are of somewhat slow growth, requiring shelter, a rich soil, and frequently division, or they deteriorate. They cannot endure drought or a poor soil, and therefore need special care in a dry season. All are easily raised from seed, but the seedlings need careful selection, their colour being often poor. Selected plants may be increased by division of the tufts in October, or cuttings of the creeping stems rooted in heat during spring. Dwarf, tufted, perennial herbs, with distinct and sometimes finely-coloured leaves, and modest but inconspicuous flowers. Of little value for their flowers, one or two kinds give pretty effects of foliage either as edgings to or beneath groups of shrubs; the best are also worth growing for their leaves for cutting for the house in winter, lasting as they do fresh for weeks in winter, the foliage being good in form as well as colour. Among the best are *H. hispida* (*Richardsoni*) *americana*, *pubescens*, and *sanguinea*, the last the only one with any showy bloom. They are N. American plants of the easiest cultivation in ordinary soil.

The following species and their hybrids are now in cultivation:—

H. FLAMBEAU.—A pretty garden seedling of good colour, with numerous stems of red flowers 2 feet high, and closely clustered as in *H. zabelana*.

H. GRACILLIMA.—Bears cloudy pink heads like a wreath of mist seen in the dim perspective of a shady border.

H. HISPIDA.—Of no value unless for its leaves; marked with rich brown zones, and turning wholly bronze and crimson towards autumn. Being evergreen, they are of some value for cutting, or as edgings and tufts in the rock garden, the flowers being removed as soon as they show.

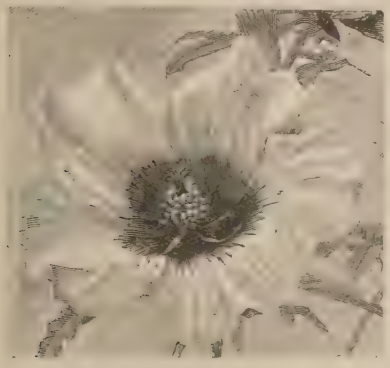
H. LUCIFER (*brizoides* × *sanguinea*).—A good and vigorous plant of 3 feet, and a real gain, being easy to grow, with the bronze leaf-tints of *brizoides* and coral-red flowers, smaller than in that kind, very abundant, and, like it, produced twice in the season.

H. ROSAMUNDI.—The best hybrid yet raised, with tall branched stems of rosy flowers, intermediate in size between those of *gracillima* and *sanguinea*. It is of good constitution and pretty for cutting.

H. SANGUINEA.—The prettiest of the wild kinds. There are several varieties in cultivation, but none of them show much improvement in constitution; they are *grandiflora robusta*, with larger flowers of a paler pink; *splendens*, with larger and darker flowers, the best of all in colour; *rosea*, also with pale flowers; and

alba, the so-called white form, though the flowers are only an uncertain greenish-grey, turning pink with exposure.

HIBISCUS (*Rose Mallow*).—Shrubby and herbaceous perennials and annuals, from 4 to 7 feet high, they have splendid crimson or rosy flowers, as large as saucers. The finest are *H. Moscheutos*, *H. palustris*, *H. grandiflorus*, and *H. coccineus*. They seldom bloom in the open air in



Venice Mallow (*Hibiscus Trionum*).

England, as they flower late in the season. There are two or three annual kinds, the finest being *H. Manihot*, which forms handsome pyramids 4 to 6 feet high, the flowers being 3 or 4 inches across, and pale yellow with a dark centre. *H. Manihot* should be treated as a half-hardy annual, sown in heat in February, and in May planted out in good deep soil. *H. africanus* is a hardy annual with showy pale yellow flowers that only open in fine weather. In light soil it usually sows itself. *H. Trionum* appears to be extremely variable, and has long been cultivated in gardens. It is widely scattered over all the warm regions of the Old World, and is usually described as a common sub-tropical weed found plentifully in cultivated fields in Afghanistan.

H. SYRIACUS (Syrian Mallow, Rose of Sharon).—A beautiful shrub, bearing showy blossoms in late summer and in autumn. The wild form has bluish-purple flowers with crimson centres, but now there are forms representing every tint from white (*totus albus*) to crimson and purple, while the blooms of one sort (*Celeste*) are almost blue. There are also double flowers of varied colours. The best kinds, single and double, are *totus albus*, *Celeste*, *Violet Claire*, *Leopoldi*, *bicolor*, *roseus plenus*, *Pompon rouge*, *carneoplenus*, *Duc de Brabant*, *albus plenus*, *puniceus plenus*, and *anemonæflorus*.

In the South German gardens this shrub bears much larger flowers than in England. The pure white kind (*totus albus*) and a few others lead to the hope that it is a plant capable of real improvement through raising seedling forms, and perpetuating the best of them. In my own trials here this tree did not open on cool hilly soils, and half open it is not worth having. In the Thames valley and below the downs it flowers well.

HIERACIUM (*Hawkweed*).—Perennial herbs with yellow flowers, very numerous, and often beautiful in nature, but not much grown in gardens. Among the best are *aurantiacum*, with orange flowers, a good plant, but apt to spread too much in the garden; and *villosum*, the Shaggy Hawkweed, a handsome plant with silvery leaves and large yellow flowers. Free in ordinary soil. Borders. Division.

HIPPOCREPIS COMOSA (*Horseshoe Vetch*).—A small prostrate British plant, with pretty little deep-yellow flowers, in coronilla-like crowns, the upper petal faintly veined with brown, the pinnate leaves small and leaflets smooth. It is a capital little plant for the upper ledges of rocks in dry positions, as in such places the shoots will fall down some 18 or 20 inches; it is easily raised from seed; partial to chalky soils; and is rather common in the south of England, but not a native of Ireland or Scotland.

HIPPOPHÆ (*Sea Buckthorn*).—*H. rhamnoides* is a beautiful seashore native shrub, happy in any free soil. The best position for it is a rather damp spot near a running stream, where the subsoil is always moist. It forms, when wild, a straggling bush, 8 or 10 feet high. In gardens it grows taller. The Sea Buckthorn has silvery-looking Willow-like leaves and bears a profusion of orange berries. Apart from the brilliantly coloured fruit, the silvery effect of the leaves is good where the bush thrives.

HOHERIA POPULNEA (*New Zealand Ribbon-wood*).—An evergreen tree from New Zealand, in flower and habit like a coarse-leaved Deutzia, and not at all like the Mallows, to which it is related. It is hardy in the warmer parts of Ireland and in the south-west

of England, a fine plant 10 feet high having flowered in the Trinity College Gardens, Dublin, for several years past. The pure white flowers are borne freely in clusters in autumn, and the sharply-tapering dark green leaves are deeply toothed. New Zealand. Seed or cuttings of the young shoots in spring.

H. POPULNEA NAR LANCEOLATA.—A graceful shrub with long narrow deep green leaves and myriads of pure white flowers.

This elegant subject has not long been known to us and for this reason should be given the shelter of a warm wall.

HOLBŒLLIA.—*H. latifolia* is a beautiful evergreen climbing shrub from the Himalayas, hardy against walls in the southern and the warm districts. The foliage is thick, with three or five leaflets of a deep shining green. The flowers are deliciously fragrant and in colour dull purplish green. As it is of tall growth it must be planted against a high wall.

HOMERIA COLLINA. — A choice bulbous plant from the Cape, thriving in such light southern soils. The flowers, in finely blending tints of orange or salmon pink shaded with purple about a yellow eye, are 2½ inches across and borne four or more together on stems of 2½ feet. They close towards evening until morning. The leaves are 4 feet long and half an inch wide, and are so succulent that unless carefully protected from snails they are soon eaten through. The bulbs increase rapidly in warm open soils, and they may be left in the ground with a covering of ashes in the south. Seed ripens freely, and germinates without any trouble in sunny seaside gardens.

HORDEUM.—Grasses, of which the Barley is the most familiar type, few of ornamental value except *H. jubatum* (Squirrel-tail Grass), which has long feathery spikes. It grows in any soil in open places, is easily raised as an annual, and is one of the most distinct dwarfer grasses. Sow in autumn or spring.

HOTEIA.—*H. japonica* is a fine tufted herbaceous plant 1 foot to 16 inches high, with silvery-white flowers early in summer in a panicled cluster. In a rich soil it is excellent for a shady border. Strong clumps planted in autumn will flower in the following spring. Where there are forced plants to spare they may be planted out when they have done blooming, but will not make much show in the following season. Much used indoors; is seldom good in the open garden, partly because it does badly in heavy and poor soils. Where it thrives and flowers well it would be a graceful aid in the varied flower garden. Increased by division in autumn. Japan. Syns. *Spiræa japonica, Astilbe barbata.* Henry's variety of *H. japonicum* is found to be a very good plant.

HOTTONIA (*Water Violet*). — *H. palustris* is a pretty British water-plant, which, however, thrives better on soft mud-banks than when submerged. The deep-cut leaves form a dwarf deep-green tuft over the mud, and from this tuft arise stems bearing at intervals whorls of handsome pale lilac or pink flowers. As water and bog may be associated with the rock garden, this plant may with advantage be grown at its margin in the water or on a bank of wet soil. It grows from 9 inches to 2 feet high, flowers in early summer, and is abundant in many parts of England.

HOUSTONIA (*Bluets*). — A very pretty little American plant, *H. cærulea* forming small, dense, cushion-like tufts, and from late spring to autumn bearing crowds of tiny slender stems, about 3 inches high. The flowers are pale blue, changing to white. There is also a white variety. It succeeds best in peaty or sandy soil, in sheltered shady nooks on well-drained parts of the rock garden. As it sometimes perishes in winter, it is advisable to keep reserve plants in pots. Propagated by careful division in spring, or by seed. *H. serpyllifolia* and *H. purpurea* are allied species and alike in stature and wants.

HOUTTUYNIA CORDATA. — This small genus contains only three species. They are beautiful as well as graceful plants, and are the only hardy representatives of the natural order Piperaceæ. All of them are well suited for the bog garden, where, in a peaty soil, they have quite a tropical appearance. The spathe bracts resemble a corolla, and consist of four large pure white spreading leaves from the base of the spadix or cone of flowers. Thunberg first found this plant in Japan, growing in great abundance in ditches by the wayside.

HUMULUS (*Common Hop*). — *H. lupulus*, a well-known, vigorous, twining perennial, is admirable for bowers, especially when vegetation that disappears in winter is desired. It will soon run wild in almost any soil, among shrubs or hedgerows. A slender plant climbing up an Apple or other fruit tree, near the mixed border, looks well. Division. *H. japonicus*, an annual plant of merit, quick growth, and graceful festooning habit.

HUTCHINSIA.—A neat little alpine plant, *H. alpina* having shining leaves and white flowers, in clusters about

Houstonia cærulea.

1 inch high, quite free in sandy soil, and easily increased by division or seeds. In an open spot, either in the rock garden or in good free border soil, it becomes a mass of white flowers. Its proper home is the rock garden, though in borders of dwarf and choice hardy plants it may be grown with success. Central and S. Europe.

HYACINTHUS (*Hyacinth*). — The familiar garden Hyacinth is not generally included among hardy plants, though it is perfectly hardy, and when treated as it should be, most important. The parent of all the varieties, *H. orientalis* is as hardy as a Daffodil, and its varieties are scarcely less hardy. Hyacinths in the open air are generally the refuse, as it were, of the forced bulbs of preceding years, but even these make a good display in suitable positions. To have a fine bloom of Hyacinths in the open air, however, it is essential that the bulbs should be good and sound, and due regard paid to assortment of colour, as tints massed by themselves are far more effective than a confusion of various colours. Late planting and deep planting both tend to defer the bloom, but make no great difference, and as a rule late bloom is to be preferred, being less liable to injury from frost. The shallowest planting should ensure a depth of 3 inches of earth above the crown of the bulb, but, generally speaking, they will flower better, be a few days later, and form stronger bulbs after flowering, if there is fully 6 inches of earth over the crowns. Hyacinths in the open air seldom require artificial watering, the natural moisture of the soil and the strength of the manure mixed with it being sufficient. When grown in beds they do not require sticks or ties; simply proper planting. After blooming, the bulbs, if intended to flower again, must be left undisturbed until the leaves wither or die. The bulbs should then be taken up, dried in a stack for a week or two, and finally placed in the sun for a few hours, the dry leaves being pulled off. Offsets should also be removed from the bulbs, and stored in dry sand or earth till the next planting time. Some take up the bulbs every year, but we have seen handsome beds that were not disturbed for several years.

H. AMETHYSTINUS.—Though nearly related to *H. azureus*, is quite different, and flowers a month later and at a time when there is a dearth of flowers of this description in the hardy bulb garden. The great mistake with a bulb like this is to have two or three, or even a dozen, in a clump. Instead of the dozen, it should be grown by the hundred, and no prettier sight can well be imagined than a large sheet of this graceful Hyacinth, with its loose racemes of vivid amethyst flowers.

H. AZUREUS.—One of the earliest as well as the most charming of our early spring flowers. In the case of a dwarf bulb of this kind flowering so early, a handlight or bell-glass is simply placed over the clump on the approach of a storm, taking the cover off when all danger is past. The flowers stand any amount of frost without injury, and it is only the chance of their being broken with snow that renders a covering necessary. The bulb is whitish, round, an inch or so in diameter, producing in great abundance

stolons or bulbils from the base; the leaves, in number from six to eight to a bulb, are broad, strap-shaped, glaucous, and deeply channelled; the flower-heads dense, conical, upper flowers sky-blue, campanulate, the lower deep azure blue, and larger than those of the ordinary Grape Hyacinth.

HYDRANGEA.—Handsome flowering shrubs, some well known in gardens, others neglected. In warm districts and on good warm soils it would be well worth while to grow many of the rarer and finer forms of the common Hydrangea, which always flowers best in seashore districts, where its shoots are not cut down by frost or by the knife every winter.

H. ARBORESCENS.—A vigorous and hardy shrub, 4 feet or more high, flowering freely July and August. Flowers a dull white, very small and crowded. Native of eastern N. America, south of New York State. The variety *grandiflora*, a very beautiful form, with flowers large and pure white, is from the mountains of Pennsylvania.

H. BRETSCHNEIDERI (syn. *H. pekinensis*).—A Chinese shrub from the mountains near Pekin. Planted in the full sun is said to make a very handsome shrub, vigorous and hardy, and flowering in midsummer.

H. CHINENSIS (Fortune's H.).—Near the last, but of more robust habit, with leaves 3 to 5 inches long, and with cymes of flowers much larger. It differs from *H. virens* in the leaves, being green on both sides, and in the enlarged sepals being nearly equal in size, much thicker—in fact, almost fleshy—in substance, and remaining on the branches until the fruit of the fertile flowers is ripe.

H. HIRTA (Nettle-leaved H.).—A dwarf shrub, 3 or 4 feet high, with slender hairy branches and Nettle-like leaves. The leaves and branches become nearly or quite glabrous with age. This, although not a showy species, seems to be a pretty, compact, dwarf shrub, with numerous clusters of white flowers. A native of the mountains of Japan.

H. HORTENSIA.—The common Hydrangea (*H. Hortensia*), from China, may be grown well out of doors, but is not always satisfactory in the midlands and the north, being liable to injury in winter. It likes a sheltered yet sunny spot and good soil. In order to get good heads of bloom the Hydrangea must be pruned so as to induce the growth of strong shoots. In favoured spots it reaches a height of 6 feet, making a beautiful object on a lawn or in the shrubbery margin. From time to time, and especially in recent years, other forms have been introduced and described, some of them as distinct species. Dr Maximowicz, who has had opportunities of studying them in European and Japanese gardens, and also in a wild state, arranges the following forms under *H. Hortensia*:—

H. Hortensia acuminata.—A much-branched shrub, 2 to 5 feet high; flowers blue. It sports according to locality, and Maximowicz enumerates four such sports, viz.: In open places and in a rich soil it is stouter, with erect thick branches, large, broad, firm leaves, and larger flowers, with somewhat fleshy sepals; under cultivation it becomes more showy, passing into *H. Belzonii*. In woods and on the shady banks of rivers it grows taller with slender stems, pointed leaves, and much smaller flowers.

H. Hortensia japonica.—The *H. japonica* of Siebold and Zuccarini's *Flora Japonica*, and the *H. japonica macrosepala* of Regel's *Gartenflora*. It is exactly like *acuminata*, save that the flowers are tinged with red, and the sepals of the barren flowers are elegantly toothed.

H. Hortensia Belzonii.—A short stout plant, with beautiful flowers, the inner sterile ones being of an indigo-blue, and the enlarged sterile ones white, or only slightly tinged with blue, and having entire sepals. There is a sport of this in which the leaves are elegantly variegated with white. This was raised by Messrs Rovelli, of Pallanza.

H. Hortensia Otaksa.—This has all the flowers sterile and enlarged. A very handsome variety with rich dark green leaves nearly as broad as long, and large hemispherical heads of pale pink or flesh-coloured flowers, very fine when well grown.

H. Hortensia communis. — The old variety with rosy-pink flowers, commonly cultivated in European gardens. It differs from the last in being perfectly glabrous in its longer, less-rounded leaves, and in its deeper-coloured flowers.

H. Hortensia stellata. — The chief character of this variety is in the flowers, which are all sterile and double. The variety in cultivation has pink flowers, but they are described as being either pale blue or rose, finally changing to a greenish colour, and distinctly net-veined.

The white variety, Thomas Hogg, is a very fine one, now widely cultivated. Most of the above-named deserve the attention of all who have soil and climate suited to these shrubs.

H. PANICULATA (Plumed Hydrangea).—A shrub or small tree. According to Maximowicz, the only Japanese Hydrangea that becomes a tree. It grows as much as 25 feet high, with a dense rounded head and a straight trunk 6 inches in diameter. But it more commonly forms a shrub a few feet high, bearing enormous panicles of flower. With the exception of

H. Hortensia, it is the commonest species in Japan, growing throughout that country both in the mountains and the plains, being more abundant in the northern parts, and it is said to vary very much. It is commonly cultivated by the Japanese. The clusters are often 1 foot long and half as much in diameter, but to get such flowers we must cultivate well and prune the shrubs hard down in winter.

H. PETIOLARIS (Climbing Hydrangea).—A Japanese climbing shrub with tall slender stems that send out roots which will fix it to a wall. Its wood is of a soft character, resembling that of the

The Plumed Hydrangea.

slower-growing Ivies, and it annually gives off fresh sets of roots along its branches by means of which it clings to rocks, stone, stucco, bricks, and even wooden palings. It is deciduous, of free growth, and flowers freely in sunny positions. I know one case where a plant has grown in a sunny corner of the house near French windows, up the sides of which there is lattice-work, and so charmed were the owners with the tender foliage, feathering the coign of the window, that they made more lattice-work in front of the window so that the creeper could extend and form a natural sunshade before the glass.

H. QUERCIFOLIA (Oak-leaved H.).—This is a fine distinct kind, and though not showy like the popular kinds, it is an excellent shrub, and one I have noticed growing with fine vigour in seashore gardens. The leaves have a good deep colour in the autumn, and the flowers are beautiful, while old plants have a picturesque habit.

H. SARGENTIANA.—Of the several species of Hydrangea introduced from China, this is the most distinct. The stems are stout and erect; the large and handsome leaves very hairy on both surfaces, the upper one of a deep velvety green. The flower-heads are broad, but the large white sterile blossoms are limited to a few outside the cluster, the small fertile ones being of a bluish colour. From a flowering point of view it is far from the showiest of the Hydrangeas, but it is a distinct and striking species. An uncommon feature of the plant is the large scale-like hairs with which the stems and leaf-stalks are covered.

H. VIRENS (Changing H.).—This is a remarkable and elegant shrub, varying in height from 2 to 6 feet. The branches, straight, slender, and polished, bearing small, thin, deeply-toothed leaves, 2 to 3 inches long, yellowish-green above and pale beneath, with small clusters of flowers, some of which are sterile. Altogether this is a pretty little shrub, and it is somewhat surprising that it has not been introduced, as it is common in the neighbourhood of Nagasaki in Japan.

Although there is a large range of land in Great Britain in which Hydrangeas seem happy, there are other inland and cold districts in which they make poor growth, or are cut down so frequently that experiments come to little. I made a trial myself on a cool hill-side in Sussex without getting any bloom or a healthy growth; but on the other hand we see, especially in the south of England and Ireland, beautiful results in warm valleys and on sandy and alluvial soils even from the use of one kind.

HYDROCHARIS (*Frog-bit*). — *H. Morsus-ranæ* is a native water-plant, having floating leaves and pretty white flowers, and well worth introducing to ponds. It may often be gathered from pools in spring, when it floats after being submerged in winter.

HYDROCOTYLE (*Pennywort*). — Small creeping plants, usually with round leaves and inconspicuous flowers. There are several kinds grown, their main use being as a surface growth to the artificial bog. The best are *H. moschata* and *microphylla*, two New Zealand species, and *nitidula*, though all of these are somewhat tender. The common *H. vulgaris* is rather too rank a grower, and dangerous to introduce among choice bog plants.

HYMENANTHERA.—A small group of shrubs and low trees from New Zealand, only one of which, *H. crassifolia*, has been introduced. This is a low evergreen with the spreading and freely-branched habit of a Cotoneaster, with small leathery leaves and inconspicuous flowers, followed by small berries covered with tiny black specks. These berries are studded thickly over the ash-grey stems and even on the old main branches, the one fault being that, clustering mainly on the underside, they are not readily seen. The plant seldom exceeds 3 or 4 feet in height, though the branches trail widely, and it is hardier than many New Zealand shrubs, growing in exposed places and without protection in the north of England. Increase by seeds, or cuttings rooted under glass during summer and early autumn.

HYMENOPHYLLUM (*Filmy Fern*).—Although these tiny Filmy Ferns are hardy and beautiful, yet the conditions for their successful culture occur so seldom that in a general sense they cannot be used with effect in the open air. Still, as they grow abundantly wild in certain hilly districts, in moist, shady, or rocky situations, there is no reason why they should not be grown in some places in the west or north, or in hilly districts.

HYPERICUM (*St John's Wort*).—For the most part shrubs and undershrubs, including a few herbaceous perennials and annuals; these are interesting, though not of high value where effect is sought, and the best kinds do not thrive in the colder lands. The Rose of Sharon (*H. calycinum*) is probably the most familiar, and there are other shrubby species of some beauty. Some of the perennials are good border and rock garden plants, and the best of these is *H. olympicum*, one of the largest flowered kinds, though not more than 1 foot high. It is known by its very glaucous foliage and erect single stems, with bright yellow flowers about 2 inches across. It forms handsome specimens that flower early, and its value as a choice border plant can scarcely be over-rated. It may be propagated easily by cuttings, which should be put in when the shoots are fully ripened, so that the young plants may become well established before winter. *H. elodes* is a pretty native plant suitable for the banks of pools and lakes. *H. nummularium* and *humifusum*, both dwarf trailers, are also desirable for the rock garden. Owing to their dwarf compact growth, several of the shrubby species are well suited for the rock garden. Of these, the best are *H. ægyptiacum*, *balearicum*, *empetrifolium*, *Coris*, *patulum*, *uralum*, and *oblongifolium*. The last three are larger than the others, but as they droop they have a good effect among the boulders of a large rock garden, or on banks. *H. Moserianum* is a handsome hybrid kind raised in France and well worth a place.

HYPOLEPIS (*New Zealand Bracken*).—*H. millefolium* is a very elegant New Zealand Fern, with a stout and wide-spreading rhizome, from which arise erect light green fronds, 1 to 1½ feet high, very finely cut. Its hardiness is proved by the fact that it has flourished for two or three years in a Surrey garden, and was also quite hardy and vigorous in Mr F.Lubbock's garden in Kent. It thrives in a sheltered nook and in peaty soil.

HYSSOPUS OFFICINALIS (*Hyssop*).—A little pot herb which has some beauty grown on a rock or wall, and is worth a place apart from its use in the herb border. S. Europe.

IBERIS (*Candytuft*).—Valuable hardy perennials and annuals, the perennials somewhat shrubby and evergreen, and precious as rock garden, border, and margining plants:—

I. CORIFOLIA.—A dwarf kind 3 or 4 inches high, and covered with small white blooms early in May. Few alpine plants are more worthy of general culture, either in the rock garden or the mixed border, for the front of which it is well suited. Easily propagated by seeds or cuttings, and thriving best in light sandy soil. Sicily.

I. CORREÆFOLIA is known by its large leaves, its compact heads of large white flowers, by flowering later than other common white kinds, and both the flowers and the corymb are larger than in the other species, coming into beauty about the end of May, when the other kinds are fading. It is excellent for the rock garden, the mixed border, and is well suited for the margins of beds of shrubs. Increased by cuttings, not coming true from seed.

I. GIBRALTARICA.—A beautiful plant, larger in all its parts than the other kinds, with flowers of delicate lilac in low close heads, in spring and early summer. Its hardiness is doubtful, and it should, therefore, be planted on sunny spots in the rock garden or on banks in light soil, and wintered in frames. Readily increased from seeds.

I. JUCUNDA.—Distinct, growing about

2½ inches high, the leaves small, the flowers in small clusters, flesh colour, prettily veined with rose in early summer. It does not possess the vigour of the other evergreen Iberises, but it is fitted for grouping with dwarf alpine flowers on warm parts of the rock garden in well-drained sandy loam. Syn. *I. Æthionema.*

Iberis jucunda.

I. PETRÆA.—A pretty alpine species, 3 inches high, with a flat cluster of white flowers, relieved in the centre by a tinge of red, thriving among rock plants in well-drained spots with plenty of moisture.

I. SEMPERFLORENS.—A shrubby plant, with dense corymbs of white flowers, and not suited for border culture, though hardy enough to stand our winters when grown at the foot of a south wall or in a very sunny corner of the rock garden. Under those favourable conditions it forms a pretty evergreen bush in bloom nearly all the year. Mediterranean islands.

I. SEMPERVIRENS. — The commonest perennial Candytuft, half-shrubby, dwarf, spreading, evergreen, and perfectly hardy, it escapes where many plants are destroyed by cold; and in April and May its neat tufts of dark green change into masses of snowy white. Where a very dwarf evergreen edging is required for a shrubbery, or for beds of shrubs, it is one of the best plants known, as on any soil it quickly forms spreading masses almost as low as the lawn-grass.

I. TENOREANA.—A dwarf kind, with white flowers, changing to purple. It has not, however, the hardiness of the white kinds, and perishes on heavy soils in winter; on light sandy soils in the rock garden it is pretty. It is easily raised from seed, and should be treated as a biennial. S. Italy.

I. UMBELLATA (Annual Candytuft).—This and its ally (*I. coronaria*) are the hardy annual Candytufts. They are varied in colour, and are among the most useful of annual flowers. They may be sown at all seasons, but, as in the case of most other hardy annuals, the finest flowers are from autumn-sown plants, which flower from May to July. They like a rich soil and plenty of room to flower freely. There are a great number of varieties, differing both in growth and colour. What are known as the dwarf or nana strain are neat and dwarf in growth, are abundant bloomers and showy. *I. umbellata nana rosea* and *alba* are two of the most distinct, being about 9 inches high; the dark crimson, carmine, lilac, and purple sorts, about 1 foot high, are also fine. The Rocket Candytuft (*I. coronaria*) in good soil grows 12 to 16 inches high, with pure white flowers in long dense heads, and there is a dwarf variety of it (*pumila*), 4 to 6 inches high, forming spreading tufts 1 foot or more across. The Giant Snowflake is also an excellent variety. These Rocket Candytufts require the same treatment as the common varieties.

IDESIA.— *I. polycarpa* is a Japanese tree of recent introduction. It has large leaves, bright green above, and whitish beneath. The flowers form long, drooping, branched racemes, and are fragrant. The colour is not brilliant, but their effect, combined with the red leaf stalks, the varying green of the leaves, and their drooping habit, is good. There are male and female forms, and, although the tree may be increased by cuttings, it is better raised from seed.

ILEX (*Holly*).—Beautiful evergreen shrubs of northern temperate countries, of which the most precious is our own native Holly, *Ilex aquifolium.* It would be difficult to exaggerate the value of this plant, whether as an evergreen tree, as the best of all fence-shelters for our fields, or as a lovely ornament of our gardens. No other shrub known to us may be so often used with good effect near the house and garden, and it will be clear, therefore, how much one should consider the common Holly in all its forms and ways. Valuable as many varieties are, probably none are quite so good as seedlings of the common kind. Good seedling plants are the easiest to transplant and establish. The art of grafting—most delusive as well as most curious of arts—should be carefully guarded against as regards Hollies. Hitherto the way has been to graft the many variegated kinds on the common

Holly, and although we often see good results in that way, it is by far the safer plan to insist on the variegated and curious kinds being raised from layers or cuttings. It will perhaps take a long time to recognise the immense superiority of own root plants, but if purchasers inquire for and insist upon getting them, it will very much hasten progress. Old plants grafted are extremely difficult to move with safety, and, generally, Hollies and other trees are best not moved when old. It is an expensive and troublesome business, and often a failure. Young healthy bushes, seedling or layer, will in a few years beat old grafted trees—that at least is my experience. Very often old specimens from the nursery live for a number of years, but their appearance is deplorable, whereas healthy, well-grown young plants, from 3 to 5 feet high, when transplanted in May, are often beautiful from the first. No doubt healthy seedling plants might be transplanted at various times, but experience has proved that there is a distinct gain in transplanting Hollies in May; and if we transplant them carefully at that time we shall probably see good healthy growth the same year.

As regards the uses of the Holly, they are so many in the garden that it is difficult even to generalise them. As shelter in bold groups, dividing lines, hedges, beautiful effects of fruit in autumn, masses of evergreen foliage, bright glistening colour from variegated kinds—variegation in the Holly, unlike other shrubs, being quite consistent with health and beauty; elegant groups of the most beautiful varieties—every kind of delightful use may be found for them in gardens.

By far the best of all known Hollies is our native Holly, but there are Japanese and American kinds worth growing, such as *Ilex crenata* and the fine *I. latifolia*, which requires our most temperate districts to thrive.

ILLICIUM. (*Anise Tree*).—A half-hardy evergreen shrub from the Southern States of N. America, *I. floridanum* bearing fragrant flowers of a deep red. *I. religiosum*, also known as *I. anisatum*, from China and Japan, with pale yellow flowers, is also interesting, and may be grown against walls or as bushes in warm places.

IMPATIENS (*Balsam*).—The species of Impatiens that thrive in the open air are all annual and hardy, and sow themselves freely where they get a chance. The best are—the common *I. glandulifera*, which attains a height of 4 to 6 feet, and bears numerous flowers, varying in colour from white to rose. It will soon take possession of the shrubbery if not checked; and it is seen to advantage in cottage gardens. *I. longicornu* is beautiful and has the same habit as *glandulifera*, but the lower part of its helmet-shaped flowers is bright yellow, marked by transverse lines of dark brown, while the upper part is rose colour. *I. Roylei* is much dwarfer than the preceding, and has blossoms of a deep rose. *I. cristata* has light rose-coloured blossoms.

IMPERATA SACCHARIFLORA.—A hardy Grass, from the Amoor, with graceful foliage, forming a tuft, about 3 feet high, that throws up numerous flower-spikes, about 5 feet in height, bearing silvery plumes of flowers. The leaves are of a lively green, with a broad white stripe down the mid-rib.

INCARVILLEA (Perennial Trumpet Flowers).—Among the most distinct and handsome plants of recent introduction. All are perennials, sometimes with a fleshy root and soft tissues, in others woody and sub-shrubby in character. Their flowers are large, handsome and trumpet-shaped. They thrive best in warm soils, deep and rich to favour their strong roots, and well drained to preserve them from stagnant moisture in winter.

I. breviscapa.—A rather dwarf, hardy and good kind, which often succeeds where other kinds perish. Rock garden in ordinary soil.

I. compacta (Dwarf Trumpet Flower).—This is a shy bloomer, bearing upon short stalks, hardly rising above the leaves, clusters of deep pink flowers, funnel-shaped, and about 2½ inches long. It is found in forms with stalks of various lengths, but is usually of compact habit.

I. Delavayi (Delavay's Trumpet Flower).—Vigorous and handsome perennial, flowering in the second year from seed sown in April. The dark green leaves vary in length, and often reach 2 feet long, and are finely cut, fleshy, and of a peculiar odour when handled.

I. grandiflora.—Of this the flowers are larger than those of *I. Delavayi*, and the habit of the plant is dwarfer, with shorter leaves and rounded leaflets, while it blooms about a fortnight earlier. Its root, large and fleshy, is less tuberous, throwing a scanty rosette of leaves rather more than a foot long, of deep shining

green, and in young plants prostrate, arching when older. It is easily raised and grown from seed in rich, free soil; seedlings take three or four years to flower.

I. OLGÆ (Princess' Trumpet Flower).—A handsome perennial of shrubby habit, and hardy in all but cold districts. Its pretty cut leaves are borne upon long, straggling stems of 4 or 5 feet, which rather spoil its beauty. The tubular flowers, about an inch long and wide, are of a pretty pale pink, borne in loose clusters upon very short stalks during summer. Turkestan.

I. VARIABILIS (Fern-leaved Trumpet Flower).—A shrubby perennial of fine habit, hardy in light, warm soils, and in mild districts. The flowers, borne upon stems of about 2 feet, are an inch long and of a beautiful light rose, with finely-cut foliage of vivid green. It is beautiful for several weeks during late summer and early autumn. These plants die out in some deep soils so it is well to plant with caution.

INDIGOFERA.—Elegant shrubs of medium or dwarf stature, so far as known with us, natives of China and Japan. Very little is known of their garden value, though occasionally seen as wall plants in mild districts. *I. Gerardiana* is a pretty plant which may be grown as a bush or against a wall, which it clothes gracefully with feathery leaves, towards the close of summer, bearing small Pea-like bright pink blooms. In certain districts it may be well to give it protection in cold winters if not against a wall, and the only attention it requires is close pruning in early winter. The kinds in cultivation—some rare—are *I. Bungeana, decora, decora alba, Delavayi, Dosua, Dosua minor, Gerardiana, Gerardiana alba, hebepetala, Kirilowii, macrostachya, pendula, reticulata, Roylei.* For treatment we can only say warm walls or sunny positions in open well-drained soils.

INULA.—Perennials, few of which are of high value for the garden. *I. Helenium* (*Elecampane*), a vigorous British plant, 3 or 4 feet high, with a stout stem, large leaves, and yellow flowers, is well suited for planting with other large-leaved plants, or in isolated specimens on rough slopes or wild places, in good soil. *I. Oculus Christi* grows 1½ to 2 feet high, and bears orange flowers in summer. *I. salicina, montana,* and *glandulosa* are similar. *Royleana, macracephala, grandiflora*—the finest kind, and its varieties under various names. Seed or division.

IONOPSIDIUM (*Violet Cress*).—*I. acaule* is a charming little Portuguese annual about 2 inches high, whose dense tufts of violet flowers spring up freely where plants of it have existed the previous season. On the rock garden, associated with even the choicest of alpine plants, it holds its own as regards beauty, never overruns its neighbours, and is often happy sown near pathways or rugged steps, growing, freely in such places; indeed, it would even flourish on a gravel walk. It

Inula glandulosa.

flowers a couple of months after sowing. Portugal and Morocco.

IPOMÆA (*Morning Glory*).—Beautiful, slender, twining plants of the Convolvulus family, for the most part tropical. A few succeed in the open air when treated as half-hardy annuals. The most popular of these is:—

I. PURPUREA (Convolvulus major).—Its varieties are numerous; there are white, rose, and deep violet varieties, while *Burbidgei* is crimson, *Dicksoni* deep blue, and tricolor striped with red, white, and blue. This beautiful though common plant may be used for the open border, for festooning branches, for covering arbours, trellises, and the like, or for rambling over shrubs, growing freely in any good ordinary garden soil. Seeds should be sown in heat in early spring, and the seedlings transplanted in May as soon as large enough. In the south seed may be sown at once in the open border. Tropical America.

I. HEDERACEA (Ivy-leaved Morning

Glory).—Is somewhat similar, but has lobed leaves like Ivy. Its flowers, too, are smaller, of a deep blue striped with red. The varieties *grandiflora* (light blue), *superba* (light blue, bordered with white), and *atroviolacea* (dark violet and white) are all worth cultivating, and Japanese variety. Seeds may be sown in the open border in April, in light rich soil, where it will flower from July to September. N. America. Other kinds of *Ipomæa* for open-air culture are *I. rubrocærulea*, a half-hardy annual, and *I. leptophylla*, a hardy perennial from N. America.

IPOMOPSIS. — Graceful biennials from California, thriving in light, dry, and warm soils in the milder districts. There are three kinds; each forms a tuft of finely-cut feathery foliage, and has slender flower spikes from 2 to 3 feet high, thickly set with flowers that open in succession. In *I. elegans* the flowers are scarlet and thickly spotted, and in *I. superba* they are much the same, while in the *rosea* variety they are a deep pink. The seeds should be sown in spring in pots in the open border in ordinary soil. During the first year the plants make growth, and early the following summer they flower. If planted out to stand the winter, it is advisable to give a little protection.

IRIS (*Flag*).—Beautiful bulbous or tuberous plants numerous in kind and wonderfully varied in beauty. The plants are for the most part hardy, and have much diversity of habit and colour, varying in height from a few inches to 6 feet. They may be conveniently divided into two classes—those with bulbous roots, which are now called *Xiphions*, and those (the greatest number) with creeping stems. In treating of culture it is well to consider these separately. The bulbous kinds should have a warm and sheltered situation, such as the protection of a south wall, and succeed in almost any light garden soil, but prefer one that is friable, and sandy, not too poor, but enriched with rotten leaf-mould and manure. Sun they must have, and the shelter must be without shade. They need an autumn drought to ripen, and a dry soil in winter to preserve the bulbs and keep them at rest; but in spring, when the leaves are pushing up, they love moderate rain. These observations apply to the Spanish and English Irises as well as the rarer bulbous kinds.

The more vigorous kinds are suited for planting among large shrubs, which ought to be wider apart than they generally are in shrubberies; and may be employed in groups near water, and also on mixed borders and beds. The flowering season of the Iris extends over the greater part of the year. The following selection of the more important kinds for our gardens is arranged in alphabetical order for convenience of reference:—

I. ALATA (Scorpion Iris).—A beautiful bulbous kind with fine large blossoms, the ground colour delicate lilac-blue, with showy blotches of bright yellow, copiously spotted with a darker hue. The foliage, which appears with the flowers, much resembles that of a Leek. It is easy to grow on a warm, dry, sunny border; planted in autumn in ordinary garden soil.

I. ASIATICA (Asiatic Flag).—Allied to the German Iris, but the handsome flowers are much larger, the lip especially being very long and broad; its colour is a very fine pale purplish-blue, the standards a little paler than the falls. A good border kind.

I. ATRO-PURPUREA.—This Iris may be considered as coming within the *iberica* group, as the foliage is not unlike that kind, and the stem, though always of some length, never rises very high. The flower is somewhat small, and, for the most part of deep purple colouring.

I. AUREA (Golden Flag).—A lovely tall plant, with yellow flowers of great beauty, hardy in the coldest soils. It does well among shrubs or in borders of the best perennials, and groups of it so placed are very handsome. It is one of the kinds that may be grouped with good effect near water, though it thrives in moist borders. Division and seed. Himalayas.

I. BAKERIANA.—This is one of the most beautiful of the spring-flowering Irises. The flowers remind one of those of the netted Iris. The colouring varies, the yellow streak on the fall, which is conspicuous in some of the forms, being almost entirely absent in others; the size and number of the violet spots and the breadth of the rich violet edging, as well as the size and brilliancy of their tints, vary in individual flowers. Armenia.

I. BARNUMÆ.—This Iris, a native of the hills of Kurdistan, belongs to the *iberica* group. The flower is smaller than that of that Flag, and both falls and standards are vinous red-purple marked with darker veins, the standard being lighter in colour than the fall, and its veins more conspicuous. There is a yellow variety described by Prof. Foster as "an exceedingly charming plant," and fragrant, the odour not being unlike the Lily-of-the-Valley.

I. BIFLORA.—A handsome Flag, 9 to 15 inches high, bearing large violet flowers

on stout stems. Similar to it are *I. subbiflora* and *I. nudicaulis*, which is one of the best of the dwarf Flags, from 4 to 10 inches high; its flowers large, of a rich violet-blue, four to seven on a stem in early summer.

I. CRISTATA (Dwarf-crested Iris) is a charming dwarf Flag, flowering in spring and also in autumn, delicate blue and

Iris cristata.

richly marked. A fragile plant, 4 to 6 inches high, with broad leaves, it throws out long slender rhizomes, wholly above ground, and thrives in sandy earth, in borders, or on the rock garden.

I. DELAVAYI.—Is a tall and lovely flower often reaching 5 feet in height. It is essentially a plant for moist, but not stagnant, situations. The flowers are violet blue, the falls being tipped with white, and if smaller than some others of this family they are very freely produced.

I. FLORENTINA (Florentine Flag).—Its large delicate flowers are nearly 6 inches deep, faintly tinged with blue, the falls veined with yellow, and green at the base, with an orange-yellow beard, whilst the broad leaves are rich dark green. A native of S. Europe, flowering during May and June. The variety *albicans* is almost pure white.

I. FŒTIDISSIMA (Gladwin).—A British plant, 1½ to 2 feet high, with bluish flowers. There is a variety with variegated leaves. The common green form is worth growing in rough grassy places for its brilliant coral-red seeds.

I. GATESI.—A handsome Flag from Armenia, and very near to *susiana*, but the rhizome is more compact, and the foliage smaller, shorter, and narrower. The stem is taller, 1½ feet or even 2 feet, and the flower, when well grown, larger. The prevailing colour of the specimens so far cultivated is, when seen at a distance, a soft delicate grey, brought about by very thin clear veins and minute dots or points of purple on a creamy-white ground.

I. GERMANICA (Common German Flag).—The best-known Flag and one of the few plants that succeed well in London. *I. nepalensis* is a charming form from India, with flowers from 5 to 6 inches long, the standards rich dark violet-purple, the falls intense violet, striped white and purple at the base, with yellow and reddish markings. It flowers during May and June, and may be increased quickly. The German Flags flourish in ordinary garden, dry gravelly soil, or sandy banks. A good selection of varieties of the German Iris, all good garden flowers, would be composed of *Atro-purpurea*, *Aurea*, Bridesmaid, *Calypso*, *Celeste*, *Gracchus*, *Mme. Chereau*, Mrs H. Darwin, Queen of May, *Rigolette*, *Victorine*, and George Thorbeck.

Iris fœtidissima (Gladwin).

IRIS (June-flowering or Bearded).—These are the noblest of a great race: moderns for which gardeners are indebted to enthusiasts like the late Professor Foster and Mr Bliss, who, happily, is still continuing the good work. In vigour, branching habit, freedom of flowering, stature, and fine presence, they are immeasurably superior to the older sorts; giants many of them, and of beauty unknown till recent years. In cultiva-

tion they ask for nothing more than a sunny garden or position, while revelling in light sandy or calcareous loam; indeed, in common with all the Flag Iris, they much appreciate a limy soil. March-April and September-October are the best planting seasons in the order given. In planting keep the rhizomes quite near the surface. The following is a selection of them:—Alcazar—a giant in flower and growth, bluish violet and purple—Azure; magnificent and free, and a most effective garden plant; Black Prince; Clematis—well named, giving an *I. Kæmpferi* effect; Crusader—noblest of Irises and the bluest of the blues; Dominion—a Black Prince glorified: quite unique, as is also the price, five guineas being asked for a plant; E. H. Jenkins—a great Iris in lavender and allied shades, branching to the ground; Eldorado—yellow, bronze, and heliotrope; Miranda—big deep blue self, early; Knysna—crimson and gold, absolutely unique, late; Lady Foster, Lord of June—two of the best in violet and blue; Phyllis Bliss—a great Iris with rosy lilac flowers of extremely handsome proportions; Prosper Langier—a notable in smoky bronze and rich crimson; Rosalind—a rosy *pallida*, very free; Sweet Lavender—lavender and blue; and Shelford Giant—bright blue and violet.

I. GRACILIPES.—Unique species from Japan, virtually a miniature of the roof Iris (*I. tectorum*). The grassy leaf tufts reach dinner-plate dimensions, and yield numerous pretty fringed flowers of lilac hue with rich orange centres. A gem for the rock garden or choice border. Quite easy in sandy loam.

I. HISTRIO.—This beautiful bulbous Iris, when peeping through the ground in winter or early spring, reminds one of *I. reticulata*, but it is rather taller, and its sweetly-scented flowers are broader and more conspicuously spotted or blotched, the colour being rich bluish-purple, flushed towards the base of the petals with rose-pink, whilst the markings are of the deepest purple, relieved by a crest of gold. Syria.

I. HISTRIOIDES.—One of the most charming of the spring flowering bulbous Irises. Though it has only been in cultivation a few years, it has proved of easy culture. The flowers are larger than those of any of the group, the falls mottled with white and rich lilac both on the claw and on the broad rounded blade. It is a native of E. Anatolia, and blooms in early March.

I. IBERICA (Iberian Flag).—One of the most singular of Iris. The flowers are large, the standards white, pencilled and spotted with purple or violet, while the falls are veined with dark purple or purple-black on a yellowish ground, with a conspicuous dark blotch in the centre. The rhizome should not be planted deep, but only just below the surface, as in most cases the roots perish when planted deeply. Coarse river sand should be used, the rhizome being planted completely in it, and by this means it is kept rather dry during the winter. Dry borders or on the rock garden.

Iris iberica.

I. JUNCEA (Rush-leaved Flag).—A lovely bulbous Iris, graceful in habit and with bright yellow flowers of a delightful fragrance, whilst it can be grown almost as easily as the English Irises. It requires a light, rich, deep soil, and will be all the better if planted where it can be kept fairly dry during winter. Spain.

I. KÆMPFERI (Japanese Flag).—The many varieties in cultivation under this name have sprung from *I. lævigata* and *I. setosa*, and form a fine race of garden plants, whilst every year many beautiful sorts are added, chiefly from Japan, though many seedlings have been raised in this country. The flowers are variable in size and colour, some measuring as much as 9 and 10 inches across. The varieties of *I. setosa* differ from those of *I. lævigata* in having broader and less-drooping petals, and the three inner petals are often of the same size as the outer, so that the flower is symmetrical. *I. Kæmpferi* will grow in almost any soil, but is best in a good loam, with peat added to it, though this is not so much for nourishment as to retain moisture during the hot and dry summer months, for this Flag likes moisture, and its numerous roots will often go 2 feet deep in search of it. It dislikes shade, preferring a warm sunny position, being especially happy when planted by the margin of a lake, pond, or stream, where cooling conditions obtain, but where the roots or crowns are not submerged. Two-year-old seedling plants of it bloom in June and July, and amongst them will be found an endless variety of colours from

white to the richest plum, the deep blues being very rich. In cultivation they prefer a generous treatment, rich loam and old manure suiting them. Plant September to November and March to early April. When transplanted this moisture-loving Flag does not bloom well until the second season after planting. Division, or seeds, which should be sown as soon as gathered either in pots or in the open ground, they will vegetate in the following spring.

I. KOLPAKOWSKIANA.—An ally of *I. reticulata*, perfectly hardy and flowering about the same time, and effective in groups. The chief difference from the netted Iris is in the bulb and leaves, which are narrow, linear, deeply channelled on the inner face, with a central band or rib like a Crocus leaf, and pale green without the glaucous tint usual to this group. The falls are deep violet-purple, with a beardless bright yellow keel, from which are purplish branchings, whilst the standards are pale self-lilac with creamy anthers. Turkestan.

I. KOROLKOWI.—Of this the leaves are tall, narrow, and upright, the scape, which is about 1 foot or so high, bearing two large flowers of delicate shades of grey and brown, and beautifully veined. Warm and dry spots on the rock garden.

I. LACUSTRIS (Dwarf Lake Iris).—A dainty, quite hardy Iris, with beautiful sky-blue flowers in spring and again in the autumn. It belongs to the rhizomatose group, is free both in growth and bloom, and succeeds in full sun and in sandy soil. N. America.

I. LORTETI.—In general features it is near to *I. Sari*, but its wonderful colouring makes it, perhaps, the most beautiful Iris in the world. "In a plant flowered by myself this summer (1893)," writes Prof. Foster, "the falls showed a creamy-yellow ground marked with crimson spots, concentrated at the centre into a dark crimson signal, while the standards were nearly pure white, marked with very thin violet veins, hardly visible at a distance." Lebanon.

I. MARIÆ.—Belongs to the *iberica* group, and was discovered on the confines of Egypt and Palestine. The rhizome is compact, rather slender, the foliage being not unlike that of *iberica*, but narrower. The flowers, on a stem of about 6 inches high, are somewhat smaller than *I. iberica*, of a uniform lilac colour, though marked with veins, but the uniformity is broken by a conspicuous "signal" patch of deep purple on the fall.

I. MEDIA.—Native of Persia, and has a small, slender, and compact rhizome. The leaves are narrower than *I. iberica*, and for the most part erect, the stem being about 6 inches in length, more or less, but it seems to vary a good deal. The fall, which spreads horizontally, is narrow and pointed, the blade being sharply curved back on itself.

I. MISSOURIENSIS (Missouri Flag).—A Rocky Mountain kind, graceful, and with delicate purplish-blue flowers, which are valuable to cut in the month of May. It grows well in a border of good soil.

I. MONNIERI.—A noble Flag, distinct from any other in cultivation, the leaves being dark green, and the flower-stem nearly 4 feet high, whilst the outer divisions of the flowers, which are very fragrant, are recurved, and of a rich golden-yellow, margined with white. It is a native of Crete, and succeeds best in rather moist soil, whilst increased easily by division or seed.

I. NEGLECTA.—One of the tallest growing species, having given rise to numerous garden varieties. Its flowers rarely measure more than 2½ inches across, the standards being of a pale blue, with darker shading, and the much reflexed falls are of a deep blue, veined with purplish-red; the crest or beard is bright yellow, and very striking.

I. OCHROLEUCA (Yellow-banded Flag).—A stately vigorous Flag and an old plant in our gardens, the foliage slender, about 4 feet long, and coming up in a graceful twist. The spikes usually bear four or five flowers, white or nearly so, with large yellow blotch on the fall, and some reach nearly 6 feet in height, strong clumps producing four or five. Few Flags will thrive better in the shrubbery border. There is a variety called *gigantea*, which has larger and finer flowers.

I. ORCHIOIDES.—Distinct in its rich, dark yellow blossoms, with black spots on the lower petals and a vigorous leafy growth. It is a profuse flowering kind, often bearing as many as six blossoms on a single spike. It is a tuberous-rooted species, hardy and free at least on warm soils.

I. PALLIDA (Great Purple Flag).—One of the stateliest and most beautiful of Flags. When in full vigour, the spikes will reach 4 feet in height, with a succession of from eight to twelve of its large pale mauve or purple flowers, scented like the elder. There are forms of it, such as the Dalmatian and also Mandraliscæ, which have deep blue flowers. It is a fine border plant, and charming in large groups.

I. PARADOXA.—A singular Cushion Iris, native of W. Persia and the Caucasus, and fitly called "paradoxical." The fall is reduced to a narrow strap half an inch or less in width, but the standard is large, erect, and while the small fall is stout and firm, almost leathery, is delicate and flimsy in texture. The ground colour of the claw is a rich crimson or deep pink, but beneath the claw and for some little distance in front of it the crimson hue is all but entirely hid by numerous short

dark purple, almost black, hairs, so thickly set as to imitate velvet very closely indeed. The plant varies much in size and colour, and the effect of the flower is very striking.

Iris pallida.

I. PERSICA (Persian Iris).—One of the most charming of the early kinds, it deserves a place wherever the soil is warm and dry. Its flowers, produced from a tuft of bright green leaves that just peep over the soil, are white, suffused with pale Prussian blue, and blotched with velvety purple. It is somewhat tender, but in warm sheltered spots, in light sandy soil, succeeds, and flowers in winter and spring.

I. PSEUDO-ACORUS (Common Water Flag).—Common as is this Flag, every one who has grown it fairly will admit its beauty. Whoever has in his garden a pond or a ditch, or even a thoroughly damp spot, ought to plant this Flag.

I. PUMILA (Dwarf Flag).—The best of the dwarf Flags, for to it we owe the many lovely varieties that give us such a rich display of bloom in spring. It grows from 4 to 8 inches high, and has deep violet flowers, unusually large for its size. There are several named varieties, the most attractive being the sky-blue (*cærulea*), which in early spring forms sheets of bright colour edgings in free soil.

I. RETICULATA (Netted Iris).—One of the most beautiful of hardy flowers While the snow is still on the ground—in January, or even earlier—its leaves begin to shoot, and while these are only a few inches high, the bud opens to the pale wintry sun a beauty of violet and gold. After the flower has faded, the erect narrow leaves grow to a height of 1 foot or more. The plant comes from some parts of the Caucasus and from Palestine, and there are several varieties. Krelagei may be recognised by flowers of a purple or plum colour, with the yellow marking less vivid ; the whole flower is smaller, also less fragrant ; in fact, is almost wholly without scent, and it flowers ten or fourteen days earlier. An exquisite gem is *I. r. cyanea*, which is very bright in colour, a slaty blue, and dwarf. Sophonensis, with red-purple flowers and a bold crest, is a native of Asia Minor, and blooms in early February. *I. r. purpurea*, a small variety with deep purple flowers, is pleasing. There are also many beautiful hybrids, *Cantab* being one of the most charming. A sunny sheltered spot is, however, advisable, that its tall narrow leaves may after flowering be protected from the wind. Sandy soil will do, but it is not particular in this respect. Sometimes, however, it refuses to grow, and in damp places the bulbs rot in summer. Since the flowers come before the leaves grow tall, it makes a good pot plant, and a well-grown clump is a charming addition to the Christmas table.

I. ROSENBACHIANA.—A charming bulbous Iris, and found on the mountains of E. Buchara, Turkestan, at an elevation of

Iris paradoxa.

6000 to 7000 feet, we are told, in two varieties, both growing together, the flowers of one form being blue, those of the other of a fine violet, whilst the bulbs of both

the varieties are small, with thin tunics, never reticulated as in the netted Iris.

I. SARI.—Derives its name from the river Sar, in Cilicia, in the neighbourhood of which it was found. It comes near to *I. susiana*, having a compact rhizome, relatively large foliage, a fairly tall (a foot

Iris persica.

or less in height) stem and large flowers; indeed, the var. *lurida*, which Prof. Foster mentions as the only one he has seen in cultivation, is often mistaken by a casual observer for *I. susiana*.

I. SIBIRICA (Siberian Flag).—A slender plant, 2 or 3 feet high, with narrow grassy leaves, and in summer somewhat small showy blue flowers, beautifully veined with white and violet. There are several varieties, the white variety, also called *I. flexuosa*, being pretty, and so is *I. acuta*, but the double-flowered form is not. The finest variety is *I. orientalis*, having larger flowers of a deeper colour, with a different veining, and the falls especially broad and expanding. The Siberian Iris is very hardy and spare plants are easily established in ditches or damp spots.

I. SIKKIMENSIS.—We find this a very distinct and interesting plant, which varies somewhat in the colour of its flowers, which in the best forms are of a rich deep violet purple, being borne on very graceful stalks about 2 feet in height, it is a lover of moist places.

I. SINDJARENSIS.—An interesting species with the habit and general character of *I. caucasica*, but having bluish flowers and a distinct crest. It flowers, however, at a time when no other Iris except *I. reticulata* is in bloom, and possesses a certain distinctive charm.

I. STYLOSA (Algerian Iris).—A beautiful plant, flowering in mid-winter, its flowers hidden in grassy foliage. When mixed with even the most delicate flowers of the stove or Orchid-house, its silky sky-blue fragrant flowers possess a charm and softness equalled by scarcely any other flower of the same colour. Although hardy, its flowers are so delicate that it should have protection from heavy rains unless the position is well sheltered. There are several varieties in catalogues, *speciosa* being one of the best, this having larger flowers of a deep blue colour. Syn. *I. unguicularis*. They all thrive best on very light warm soil on well-drained borders in sheltered gardens. Division.

I. SUSIANA (Mourning Iris).—One of the most singular of all flowers, from 1½ to 2½ feet high; the flowers very large and densely spotted and striped with dark purple on a grey ground. It should be grown in sunny nooks in the rock garden, or on sheltered banks or borders, but always in light, warm, or chalky soils. I have seen it flowering well in a border in the Archbishop of Canterbury's garden near Broadstairs, where it is hardy. Asia Minor. Division.

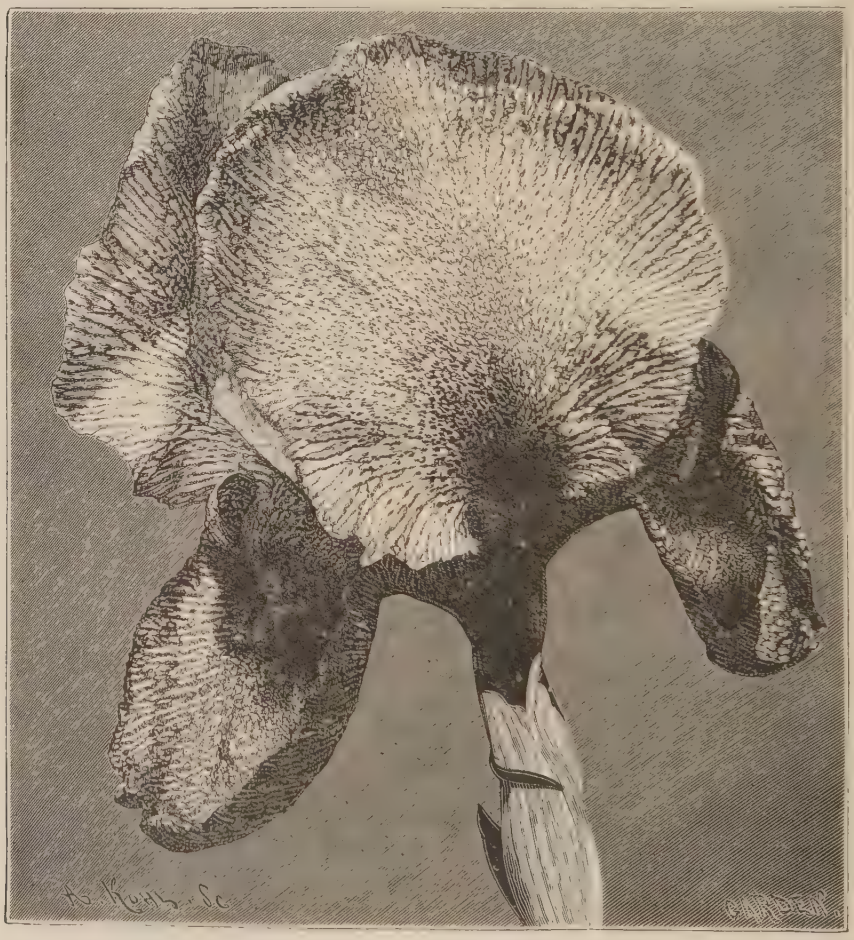
I. TUBEROSA (Snake's-head).—This is an interesting if quiet-coloured kind, 12 or 13 inches high, the flowers small, brownish-green marked with yellow, and a purplish-

Iris reticulata.

brown tinge on the upper part. There are usually two tubers. It is not showy enough for every garden, but where admired it may be naturalised in light soil. S. Europe.

I. VARIEGATA.—A handsome Flag of the Germanica group, 1 to 2 feet high, with large, slightly fragrant flowers, having bright yellow standards and claret-red falls beautifully veined. Similar in aspect is *I. aphylla*, with deep lilac falls and white standards veined with purple, whilst there are numerous varieties, the colours of which are varied and beautiful. *I. lurida* and its varieties also come under this group.

tinct in aspect from those of the Spanish Iris, and appear a fortnight or so later. They are broad and display a beautiful diversity of colour, from deepest purple to pure white. Among the good varieties are Leon Tolstoi, Mont Blanc, Grande Celeste, King of the Blues, La Charmante, and Vainqueur. There are, of course, many other varieties in which one gets flowers splashed and mottled with various colours. These are not so fine as the bold



Iris susiana.

I. XIPHIOIDES (English Iris).—A beautiful flower, and the many garden varieties are amongst the finest things we have in early summer.

The English Iris got its popular name in a rather curious way, being sent from its Pyrenean home, where its distribution is limited, to Bristol traders, thence to Holland. The Dutch, supposing it to be a native of our shores, called it the English Iris. The flowers are quite dis-

self kinds, and raisers should think less of them, rather giving us self-colours, which are always more effective, both in the garden and when gathered for the house. There is a curious variety called Thunderbolt, which is of a dusky dull colour.

I. XIPHIUM (Spanish Iris).—A very beautiful flower, and an old inhabitant of gardens. The prevailing colours are blue, with various shades of purple or violet, yellow, and white. The blue tints of the

cultivated seedlings seem to be derived from the typical Spanish plant; the yellow hues may be traced to the Portuguese variety, sometimes known as *I. lusitanica*.

The Spanish Iris must not be waterlogged in autumn and winter, preferring a loose, friable, sandy soil, which, however, should not be too poor, for it repays feeding with thoroughly rotten leaf-mould or manure. Sun it must have, but as its slender stalks suffer from winds, it should have shelter without shade. The golden rule of not meddling over-much applies distinctly to the Spanish Iris, as the new roots begin to shoot out almost before the old stalk has withered, and the bulb must not be kept out of the ground. Plant, then, the Spanish Iris in clumps on some rich, loose, friable plot, where their bright colour may be shown to advantage, and let them stay there year after year until the dwindling foliage tells you that they have exhausted their soil. The beautiful varieties of Spanish Iris are well worth a place in the reserve garden for supplying cut flowers.

DUTCH IRIS.—A new race of bulbous Irises is known by this name. They are earlier than the Spanish sorts, larger, and with bolder and handsomer flowers Albert Cuyp, David Teniers, Hackaert, Hobbema, Pieter de Hoogh, Rembrandt (a glorious blue, and one of the best), and Van der Helsh is a selection of them. They are vigorous and multiply readily, and well suited to the English climate.

THE IRIS: ITS PLACE IN THE FLOWER GARDEN.—The Iris family, comprising as it does a vast number of plants which can hardly be done justice to in any one garden, there arises, apart from the wishes of the owner, the question of the value of the family in the garden. The difficulty in the way of growing various wild species from climates quite unlike our own—the shortness of the season of bloom—make some limit the number of species to be grown in any one place. As to the collector who rears all novelties and rarities, the best way is to devote to the Iris a special border where they may be grown apart from other considerations. The Iris of the riverside and marsh I find the least trouble and the most enduring; such as the Siberian Iris and the Japanese Iris often thrive with me in wet soil near the pond side. untouched and uncared for for years.

ISOPYRUM.—A graceful little plant allied to the Meadow Rues, *I. thalictroides* has prettier white flowers, and is valuable for its Maiden-hair Fern-like foliage. It is well suited for the rock garden, is hardy, and prefers a soil mixture of peat and loam. Division or seed. Europe. Ranunculaceæ.

ITEA.—Graceful and distinct shrubs, evergreen and deciduous, Chinese or N. American, the species *ilicifolia* being quite a choice evergreen, Holly-like shrub, but smoother and thinner, it bearing weeping racemes nearly a foot long. It is not likely to be hardy except in warm valleys and seashore places. *I. virginica* is moisture-loving, hardy, and deciduous. N. America.

IXIA.—Charming S. African bulbs, slender and elegant in growth, and brilliant in flower, but not much grown, because some are tender and require glass protection. For culture outdoors, choose a light, loamy soil, thoroughly drained, and with a due south aspect; if backed by a wall or a greenhouse, so much the better. In favoured gardens near the coast they are hardy in the open, and increase rapidly. Plant from September to January, 3 to 4 inches deep, and 1 to 3 inches apart. On cold soils Ixias are not worth growing.

IXIOLIRION (*Ixia Lily*).—Beautiful plants of the Amaryllis order somewhat resembling each other, and about 1 to 1½ feet high, with grassy foliage, and bearing large trumpet-shaped flowers in a loose, elegant manner. *I. Pallasi* has flowers of the deepest shade, and *I. tataricum* of the palest, the intermediate shades being *I. montanum* and *I. Ledebouri*. They should be grown in an open and dry position—in a sunny border, for example, which is all the better with a wall at the back, so as to catch all the sun-heat possible in early spring, when the bulbs are pushing up their young leaves. The border should be well drained and a bed of light, rich, loamy soil, about 1 foot in depth, placed upon the drainage. When the young growth appears, place a common handlight over the plants—even two panes of glass will be beneficial—and if similar protection is afforded at the latter part of summer, it will tend to keep the soil dry and warm, and so ripen the bulbs. A handful of dry sharp sand placed in a layer under and around the bulbs is conducive to the formation of roots. W. Asia.

JAMESIA (*J. americana*).—A dwarf shrub from the Rocky Mountains, about 3 feet high, summer

leafing, many clusters of white flowers. It is hardy, of easy culture, and fitted for association with flowering shrubs of a medium size, but is of no high garden value in view of the many handsome hardy shrubs we possess.

JANKÆA.—*J. Heldreichi* is one of the prettiest of the Ramondia family, a native of the mountains of Macedonia, growing in ravines. It has been considered a tender plant, dying away in

Jankæa Heldreichi.

our gardens in spite of the most careful handling, but it is likely to grow as well as other Ramondias if its special wants are attended to. It likes to be moderately moist at the roots and have shade and moisture in the air. Some place on a well-constructed rock garden should be chosen, where it will thrive in peat. The blooms are of a deep blue, nodding, and shaped like those of a Soldanella, and it has silver-grey leaves.

JASIONE (*Sheep's Scabious*).—Dwarf perennials and annuals of the Bell-flower family. *J. humilis* is a creeping tufted plant, about 6 inches high, bearing small heads of pretty blue flowers in July and August. Though a native of the high Pyrenees, it often succumbs to the damp and frosts of our climate, and it therefore requires a dry well-drained part of the rock garden, and should have a little protection in winter during severe cold and wet. *J. perennis* is taller, often above 1 foot high, with dense heads of bright blue flowers, from June to August; it is a rock garden plant, stronger than the preceding, thriving in good light loam, and a native of the mountains of C. and S. Europe. These perennial kinds may be propagated best from seed, as they do not divide well. *J. montana* is a neat, hardy annual with small, pretty bright blue flower-heads in summer. Seed in autumn or spring. A native plant.

JASMINUM (*Jasmine*).—Beautiful shrubs, the hardy ones among the best introduced to our country, and of very wide and precious use.

J. FRUTICANS (Shrubby Jasmine).—A wiry-looking shrub from S. Europe and the Mediterranean region; hardy in England, and though not so important as some of the free-growing kinds, is worth a place on dry banks. It has numerous small yellow flowers.

J. HUMILE (Indian Yellow Jasmine).—A handsome kind, being quite hardy for wall culture in all parts; with evergreen foliage, which adds to its value. It flowers freely, and its yellow bloom amidst the deep green foliage is welcome in summer and autumn. Being an Indian plant, it should have a warm aspect and good warm soil.

J. NUDIFLORUM (Winter Jasmine).—A lovely Chinese bush which is happy enough in our northern climate to flower very often in the depth of winter, clustering round cottage walls and shelters, and often very lovely when not too tightly trained. In wet years it will be noticed increasing as freely as twitch at the points of the shoots. It should be planted in different aspects so as to prolong the bloom, planting each side of a house or cottage, for example. The sun coming out after hard frost may destroy the bloom on one side, and it may escape on the other.

J. OFFICINALE (White Jasmine).—The old white Jasmine of our gardens, one of the most charming ever introduced for walls and warm banks; it is best on warm soils, and often thrives in the heart of our cities. It is one of the best of all climbing shrubs, on account of its hardiness and rapid growth in almost any soil. There are several varieties of it, the best being *J. affine*, with flowers larger than those of the ordinary kind. It is almost evergreen, except in exposed places. It is a native of Persia and the north-western mountains of India, but is naturalised here and there in S. Europe.

JEFFERSONIA (*Twin-leaf*).—An interesting dwarf plant, allied to the Blood-root, *J. diphylla* being from 6 to 10 inches high, the flowers white, about 1 inch across, in early spring. It is a good plant for peaty and somewhat shady spots on the rock garden, and for the margins of beds of dwarf American plants. Seed should be sown in sandy soil as soon as gathered,

but careful division of the root in winter is the best way to increase the plant. A native of rich woods in N. America.

J. DUBIA is a beautiful species from Manchuria, flowering in May. The plant produces a tuft of roundish leaves and great numbers of Hepatica-like flowers of pale mauve colour. Height, 6 inches. Quite happy in peat and loam.

JUGLANS (*Walnut*).—Stately trees of northern and eastern regions, among them being our noble European Walnut, a tree as well known to the ancients as to ourselves, and useful and beautiful in all ways.

Our Walnut (*J. regia*), has been cultivated for so long that no one is clear as to its origin, but it is a tree of wide distribution in the East, and in countries where it is much cultivated has many varieties, differing much in size and in the tenderness of their shells, and even in earliness. Though the Walnut is not so much grown in Britain as in countries of S. Europe, it is very happy in some of our southern, western, and eastern counties, occasionally attaining fine proportions, especially on warm and chalky soil; but as we go farther north it becomes less and less likely to ripen its fruit, and in Scotland it has to be grown against walls. In parts of C. and S. Europe it is so much cultivated that the wood and fruit and oil produced by it form a principal source of commerce. There is very much of interest as regards the uses of the various products of the Walnut in countries where it is at home, but here we are concerned with its culture and beauty as a lawn, pleasure ground, or orchard tree, and in this way with us it does best in good and rather dry soils on calcareous base, though thriving in other soils.

The form of single trees is often very fine, as indeed it is as a group, and sometimes as a short avenue. It may also be grown as an orchard tree where the soil is favourable and there is plenty of room. The finest specimens are occasionally nearly 100 feet in diameter in spread of branch. The cut-leaved forms will appeal to some. Among the other species there are remarkable trees, but our common Walnut has in Europe so many good qualities that it is the best to plant, although some of the other species are good for collections of hardy trees, such as *J. cineria*, the Butternut, *J. nigra*, the black Walnut, both of America; the latter a very hardy, fine tree which would thrive in situations where our common Walnut might not be so free; *J. mandshurica*, of the Amoor region; *J. rupestris*, of the W. United States; and *J. Sieboldi*, of Japan; besides several hybrids between the common Walnut and other species.

JUNCUS (*Rush*). — Water-side or marsh plants, generally with long round leaves. *J. effusus spiralis* is a very singular plant, whose spreading tufts of leaves, instead of growing straight, are twisted in a cork-screw form. It is worth cultivating on the margins of water. It is easily multiplied by division of the tufts. *J. zebrinus* is apparently a form of the common Rush (*J. communis*). The long round leaves are barred with bands of yellow and green, and it is a striking plant, as its rigid habit and singular markings stand out in bold relief.

JUNIPERUS. — Evergreen shrubs and medium-sized trees, natives of northern and temperate countries. The wood of some kinds is fragrant, and the foliage contains an acrid principle as in the Savin. The Junipers vary much in size and habit in their native countries owing to their usually wide geographical range, and to growing in all sorts and conditions of soil and climate, so that, probably, mere forms of varieties have been considered species. Some are too tender for our climate, although of much value in their own, while others are quite hardy and vigorous with us. Such beauty as the hardy kinds possess is very much diminished by the common way of planting them among shrubs; or, in the case of the pinetum, isolating in grass, both ways being against their good effect and good cultivation even. Where possible, the really effective way is to group them. The good effect of this is well seen in the case of the common Savin, as indeed it would be in most of the others, and where there is no room to do this, and do them justice, it would be better to leave them out altogether, as, starving in the embraces of the common British shrubbery, they soon come to a bad end. The following are, so far as we know, the most distinct of the hardy kinds only:—

J. CHINENSIS (The Winter-flowering

Juniper).—A low tree or bush, hardy and useful in gardens, as during winter or in early spring, when covered with its yellow male flowers, it is beautiful, and of the easiest culture, succeeding well on loamy soil; several varieties are in cultivation. *J. Japonica* is thought to be an alpine form of this.

J. COMMUNIS (The British Juniper).—Chiefly found growing in England on sandy or chalky soils or on open downs, while in Scotland its native home is amongst the granite or trap on hill and mountain sides. The Irish Juniper is a close erect form, not confined to Ireland, but occurring also wherever the Juniper is plentiful. *J. communis* varies much in gardens, and we often see forms of it where the wild plant is never cultivated, though we doubt if any of the varieties are better, if as good.

J. DRUPACEA (Plum-fruited Juniper).—A native of Syria and Asia Minor, on the mountains there attaining a height of some 15 feet. Thrives in gardens best on good, well-drained soil. It has a close, conical habit of growth, with branches of a light grassy-green colour. This Juniper makes a good tree for a lawn. The fruit is a fleshy one, enclosing a hard kernel, about the size of the Sloe, and of a plum-like purple.

J. EXCELSA (Tree Juniper).—A graceful tree native of many countries in Northern India, Persia, Arabia, and Asia Minor, in some of the most favourable conditions forming large forests at very high elevations. A close tapering form was sent out from Messrs Rollisson's nurseries as *J. e. stricta*, and is a very glaucous and attractive shrub.

J. RECURVA (Weeping Juniper).—A distinct kind with graceful drooping branches, from the mountains of India and Cashmere, varying in size from a low bush to a medium-sized tree according to climate and soil. The male form is more close in habit than the seed-bearing one. At Brynmeirig, near the Penrhyn slate quarries, there are a number of these graceful Junipers, which for size are perhaps not excelled in Britain. The soil is loam and peat resting on shaly slate rock—the situation is shady and with a northern aspect, which seems to suit this species.

J. RIGIDA (Mount Hakone Juniper).—A graceful and picturesque kind with free and often drooping habit, and in S. England at least vigorous and hardy, assuming in autumn and winter a pleasant bronzy hue of green. It has not been long enough in cultivation to judge of its stature or permanent habit and value in Britain, but it promises well. Japan.

J. SABINA (Savin).—A hardy and plumy bush of the mountains of Europe, few evergreen shrubs being more beautiful. In the garden at Goddendene, near Bromley, a dwarf form is very prettily used as a lawn plant. Among the varieties of the Savin the most useful forms are *J. prostrata* and *J. tamariscifolia*—variegated ones, as usual, being ugly and useless.

J. THURIFERA (Frankincense Juniper).—A small distinct tree, in its native country attaining a height of 40 feet. As a lawn tree it is attractive, and from its dense conical shape associates well with trees of the same race, and is very hardy. Spain and Portugal.

J. VIRGINIANA (Red Cedar).—A graceful, hardy tree on the hills and mountains of N.E. America, giving somewhat of the effect of the Eastern Cypress in Italy, and in Britain one of the hardiest and most graceful. This tree, like many Conifers that have been much grown, has had its forms and varieties propagated, few of them being better than, if as good as, the common kind, except, perhaps, the silvery forms, which sometimes occur among plants raised from seed, as they should always be.

JUSSIÆA NATANS.—A curious aquatic plant that bears large yellow blossoms a few inches above the surface of the water. It is a valuable plant for a pool or small lake, and hardy.

KALMIA (*Mountain Laurel*).—The Kalmias are among the most beautiful of N. American shrubs, evergreen in foliage and charming in flower. Thriving in a moist, peaty soil, or one light or sandy. They will not thrive in stiff or chalky soils. Their lovely clusters of pink wax-like flowers open about the end of June, when the bloom of the Rhododendron and Azalea is on the wane, and last for a fortnight or longer. There are varieties of the common kind having, in some cases, larger flowers, and in others flowers of a deeper colour, the finest being *maxima*, which is much superior in size of flower and richness of tint. The Myrtle-leaved Kalmia (*K. myrtifolia*) seems to be only a variety of *K. latifolia*, with smaller Myrtle-like foliage. The growth is dwarf and compact, and the flowers are almost as large as those of *K. latifolia*. The other species of Kalmia, though very beautiful, are of less value, because they are smaller, more delicate, and less showy, but in peat-soil gardens they should be grown. *K. angustifolia* grows about 1½ feet high, and bears in early June dense clusters of rosy-pink flowers. *K. glauca* and *K. hirsuta* are also pretty shrubs, *K. glauca* flowering in early summer, and *K. hirsuta* in August.

KERNERA SAXATILIS.—A neat little plant forming a compact tuft of foliage, and in early summer a dense mass of tiny white blooms. It grows in any soil in an open position in the rock garden, where it is an attractive plant in spring, and may be freely propagated by seeds. Europe.

KERRIA (*Jew's Mallow*). — The double variety of this Japanese shrub, *K. japonica*, is an old favourite in cottage gardens. The large yellow rosette flowers are more show than those of the single kind, which is a pretty shrub. Though usually planted against walls, the Kerria is hardy, and may be grown as a bush except in the coldest parts. Prefer the single kind.

KIRENGESHOMA PALMATA.—A vigorous, hardy, herbaceous plant from the mountains of Japan, with dark stems of about 3 feet high, bearing thin hairy leaves shaped like those of a Sycamore, and clusters of long drooping bright yellow flowers in early autumn, the five fleshy petals overlapping so closely as to appear like one, and measuring 2 inches long and about half as wide. The plant is best in moist, leafy soil, and in woodland shade. Increase by seeds and division.

KNIPHOFIA (*Torch Lily*).—Handsome and very distinct perennials, but prevented by our severe winters from becoming very popular. The genus, as understood by botanists, is restricted to the mountains of Abyssinia and the Cape, with the exception of one species found by Speke and Grant near the Equator, and one or two kinds indigenous to the mountains of Madagascar. There are twenty or thirty species, and none of the six found in Abyssinia is identical with any sort found at the Cape. The Kniphofias, and especially the forms of *K. uvaria*, are among the most striking of autumn flowers. Large irregular groups in open spots give a brilliant effect in autumn, best in free loam. During the late winters many kinds have perished from frost, but these dangers may be averted by a covering of dry leaves or ashes in late autumn. The stemless kinds are easily propagated by division and by seed when produced in favourable seasons; but not the stemmed or caulescent kinds. However, those who wish to increase their stock of the stemmed kinds need not fear to behead them; in fact, this is the only way in which *K. caulescens* can be propagated, as otherwise it seldom develops off-shoots. When so treated it will throw up a large number of shoots, which, if allowed to remain until a few roots are produced, may be taken off and kept in a close frame for a time, and then potted in a sandy compost. *K. sarmentosa* is the easiest to increase, as it throws out underground shoots, which may be taken off at any time.

Kniphofia grandis.

K. ALOIDES (Torch Lily).—An excellent border plant, suitable for all soils, and while few plants are better for picturesque grouping in the pleasure ground, in the shrubbery, with a fairly open space and with deep rich soil it forms handsome groups. It begins to flower in late summer, and lasts for many weeks in perfection, and nearly 70 per cent. of the garden varieties are traceable to it. *K. pumila* is a pretty dwarf form. The variety *præcox* flowers much earlier than *K. aloides*, from the middle to the end of May; its leaves are broader than those of the type, and are not glaucous, while the raceme is shorter, the stems being about half as long as the leaves. The variety *nobilis*, which very much resembles *grandis*, if indeed it is not the same kind, is a robust and noble plant, its leaves more distinctly serrated than those of *grandis*, its flowering stem 5 to 8 feet in height, with flowers varying from scarlet to

orange-scarlet; the anthers are prominent. It blooms throughout August. The variety *serotina* is interesting from blooming a month or so after all the other Kniphofias are over; its flowers are greenish-yellow, occasionally tinged with red. The variety *Saundersi* has bright green leaves and very rich orange-scarlet flowers; the variety *longiscapa* has very long flower-heads, and is a most desirable form; the variety *maxima globosa* has globose heads of yellow and red flowers; and the variety *glaucescens* has large flower-spikes, the flowers being vermilion-scarlet shading to orange. It is a free-flowering plant, and is one of the best for heavy rich soil.

K. BURCHELLI.—Introduced by Mr Burchell from the Cape, is a distinct and beautiful plant with a purple-spotted stem and bright green leaves, firm in texture, 2 to 3 feet long, which taper gradually to the apex. It flowers soon after midsummer, and just between *præcox* and the other forms of *K. aloides*. The flower-heads are moderately dense, and the flowers are bright red, excepting those at the lower end of the head, which are bright yellow, the style protruding, the stamens being included in the tube. A useful and distinct plant, suited for dry banks and borders.

K. CARNOSA.—A beautiful plant, forming low spreading leaf-rosettes, from the midst of which a number of flower-stalks rise to the height of 1 foot, with cylindrical flower-spikes about 3 by 1½ inches; the smallness of the flowers is compensated for by their glowing apricot colour, enhanced by bright yellow anthers. The flowers open first on the top side in September. Abyssinia.

K. CAULESCENS and K. NORTHIÆ.—These differ from all other cultivated kinds in having stems. *K. caulescens* differs from all the forms of *aloides* in being smaller, and in having very glaucous leaves, short heads, and smaller and less curved flowers. The stem, at 5 or 6 inches from the ground, can just be spanned by both hands; the scape is about 4½ feet high, with a dense head of flower 6 inches in length of a reddish-salmon colour in its earlier stages, but in the fully-expanded flower it gradually becomes white, faintly tinged with greenish-yellow, producing an effective contrast. The glaucous blue-grey foliage is pretty. Though less brilliant than most of the species, it is one of the hardiest, and is distinct and robust. It is a very striking plant for the bold rock garden, and it does well and flowers freely on dry slopes in light warm soils, and in open sunny positions. It should have a little protection in severe cold. Suckers or offsets taken off in early autumn root freely in sand in a cold frame.

K. COMOSA.—Seems closely allied to *K. pumila*, and has a peculiar appearance with its long protruding style and anthers. It is much dwarfer than *K. aloides*, its leaves are much narrower, while its flowers are smaller and its bright green leaves are in dense rosettes, narrow, very pointed, and almost three-cornered. The bright yellow flowers droop in a dense oblong head, the stamen and style being about twice the length of the flower tube. *K. comosa* is a showy plant, flowering in September, but is rather tender.

K. FOLIOSA.—Almost the counterpart of *K. caulescens*, but it has distinct stems, being also one of the most robust of all the Kniphofias, and easily distinguished by its broadish leaves and its protruding stamens. The leaves form a dense tuft on the top of a stem 1 to 3 feet high, and are 3 or 4 inches broad at the base, tapering to a long point; flowers in a dense oblong head nearly 1 foot long, bright yellow or tinged red, appearing in late autumn. Cape. Syn. *K. Quartiniana*.

K. MACOWANI.—This differs from most Kniphofias in having the segments of its corolla reflexed, and in being of dwarf habit, 12 to 18 inches high, the narrow grassy leaves 1 to 2 feet long, the flower-heads small, the flowers of a bright orange-red. It is hardy, and is suitable for rock gardens. *Rigidissima* and *maroccana* are garden synonyms. The variety *longiflora* has much longer flowers. *K. corallina* is a robust hybrid. It is exactly intermediate between *K. Macowani* and *K. aloides*, and is a very pretty plant.

K. NORTHIÆ.—This is most nearly allied to *K. caulescens*, but its leaves are much broader, are not keeled, and are serrulate on the margins. The dense flower-heads are about 1 foot long, the flowers being pale yellow, but the upper ones are tinged with red towards the tips. S. Africa.

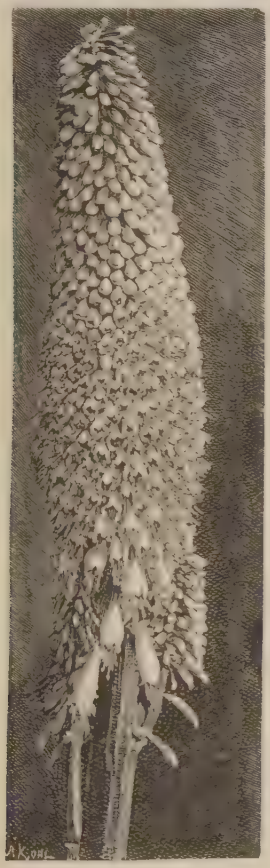
K. ROOPERI.—Nearly allied to *K. aloides*, but is an early or summer-flowering plant, while the stamens are included in the tube; the flowers are paler and less curved, and the leaves are broad and very glaucous. *K. Rooperi* is a native of Caffraria, and requires a little protection during severe winters. It has a fine bold effect when in full flower, the flower-heads, 6 inches to 1 foot long, being crowded with bright orange-red flowers, which get yellowish with age.

K. SARMENTOSA.—Distinguished from *K. aloides* by its smaller glaucous leaves, the cylindrical flower-heads from 6 inches to 1 foot long, the flowers red in the upper half, and yellow, or yellow tinged red, in the lower. It is perfectly hardy. Cape.

K. TRIANGULARIS.—Reminds one of *K. Macowani*, especially as regards the flower-spike, which is about the same size and of a similar tint. The foliage, however, is broader and longer, and in this

respect it resembles *K. Uvaria*. It is desirable because it is earlier in flower than most varieties, and also because it is a free grower.

K. Tysoni.—A handsome new variety, with persistent strong foliage of a soft glaucous shade, each leaf measuring 3 feet or more in length and 3½ inches wide at



Kniphofia Obelisk.

base, tapering to a fine point; the edges of leaf finely serrated. Through June the strong Yucca-like growths bear bold spikes of orange-scarlet and primrose-yellow flowers, the upper portion of the inflorescence being red, the lower primrose. In the bud stage the whole is orange-red, but as the lower flowers expand they change to soft primrose, the flowers opening from the bottom upwards.

K. Tucki.—Has large, glaucous, Yucca-like foliage, growing 4 to 5 feet high, with massive heads of bright red flowers, changing to yellow, and borne early in June.

Other species not noticed in detail are *K. pumila, pallidiflora, pauciflora, natalensis, Kirki, Tysoni, modesta, Granti.*

Hybrids and Varieties.—We are indebted to Mr Max Leichtlin for quite a group of them. Others have given us beautiful forms, such as the varieties John Waterer, Otto Mann, Max Leichtlin, and John Benary, but all these owe their origin to red-flowered species, and do not much depart from the typical forms. Since the introduction, however, of yellow-flowered species, a new field was opened to the hybridiser. The predominating colour in these new hybrids is yellow, in all shades varying through orange to a crimson - scarlet. In habit the plants vary quite as much as in the colour and form of the flower-spikes. Of some, whose parentage to *K. Leichtlini* must be very near, the foliage is narrow and deciduous, and the spikes not more than 3 feet high. Other varieties have massive foliage some 3 inches or 4 inches broad, the spikes attaining a height of 7 feet. The variety *Obelisk* is robust, with broad leafage and spikes some 5 feet in height. The colour of the spikes is a pure golden - yellow, and strong spikes often produce two or three additional spikelets.

Other beautiful forms are Triumph, a very fine hybrid; Star of Baden-Baden, straw-yellow, the spikes more than 7 feet high; Ophir, orange-yellow, very free-flowering; Lachesis, very hardy and rapid in growth, the flower deep yellow, turning to straw colour. Turning from the yellow varieties we have Leda, a beautiful and early-flowering form, about 4 feet high, the flowers coral-red with an orange tinge. Matador seems to have *nobilis* for one of its parents; the spikes are large, broad, and the colour a deep red. All the hardy kinds grow well in deep well-drained loam, and are readily increased by division or by seeds, which some varieties bear freely in mild localities.

KOCHIA (*Belvedere*).— *K. trichophylla* is an interesting summer Cypress of the Goosefoot family, forming a neat pointed bush from 3 to 5 feet high, the flowers insignificant. The graceful habit of the plant makes it valuable, placed either singly or in groups, especially from July to September, the time of its full development. In autumn it assumes a very effective reddish tint. It should be sown in April in a hot-bed, and afterwards planted out in beds or borders. S. Europe.

KŒLREUTERIA.—*K. paniculata* is

a small tree, beautiful when in flower; the long divided leaves, elegant throughout summer, in autumn die off a rich yellow, and the yellow flowers form large clusters over the spreading mass of foliage. It is picturesque, valuable for groups, is a native of China, hardy, and thrives in any good soil.

A new variety, *K. bipinnata*, has recently been introduced from China, but it has not yet been established sufficiently long in this country to enable us to judge of its value.

KOROLKOWIA SEWERZOWI.—A singular-looking bulbous plant, allied to and much resembling a Fritillary. It grows from 1 foot to 1½ feet high, and has broad glaucous leaves and nodding flowers, greenish outside and vinous purple within. A native of the mountains of Turcomania, hardy in our climate. Bulblets or seed.

LABURNUM (*Golden Rain*).—Flowering trees of Europe, of singular beauty, quite hardy and vigorous in our islands, and giving fine effects, all the more so if placed with some care as to position and surroundings.

L. ADAMI.—Is a graft-hybrid; the same tree, and even the same branch, bearing racemes of both yellow and purple flowers, and sometimes flowers of a dull purple. Old trees of these are quaint and not without beauty, though it is far from having the effect of the natural species and their varieties.

L. ALPINUM (Alpine L.).—A hardy tree, native of the hill forests of France and C. Europe, reaching a height of nearly 40 feet. The natural form is a very beautiful tree, and from it varieties of the highest value have been raised and increased from time to time, among the best *Parkesi, Watereri, autumnalis, biferum grandiflorum; hirsutum, pendulum, Vossi.* The Alpine Laburnum and its best varieties may be known from the other European species by its longer raceme, broader and deeper green leaves, and later bloom. Grown from seed it varies a good deal. Some fine varieties came in that way.

L. VULGARE (Common L.).—A handsome flowering tree of mountain woods on call careous soil, but growing freely in any soil in our gardens, flowering densely and earlier than the Alpine Laburnum, and, like it, reaching almost tree-like stature—30 to 40 feet.

LACTUCA (*Blue Thistle*).—*M. Plumieri* is a native of the Pyrenees, where it is 4 or 5 feet high, but in our borders and in deep strong soils it is frequently as much as 8 or 9 feet high. Its foliage is beautifully varied in outline, and it should be planted in the rougher parts of the wild garden, and left to itself, as nothing seems to interfere with its rapid growth. *M. alpinum* is a smaller plant, and the worst weed ever got into the garden. Seed or division. Syn. *Mulgedium.* Some of the kinds are very difficult to get rid of once planted in good garden soil, and the place for them is the wild garden.

LAGURUS (*Hare's-tail Grass*).—A pretty annual grass, about 1 foot high, *L. ovatus* having hare's-tail-like plumes, useful for bouquets. It should be sown in pots in August, wintered in frames, and divided and transplanted in spring, or sown in open ground in April. Flowers from July to September, and is pretty in the flower garden in large patches as a relief to showy flowering things.

LAMARCKIA.—*L. aurea* is a small hardy annual grass, with silky plumes, becoming golden as they mature. It is suitable for bouquets, and may be dried for winter use. Seeds should be sown in spring or autumn, in the open border in light soil. S. Europe and N. Africa.

LAMIUM (*Dead Nettle*).—Perennial herbs of which there are a few plants occasionally worth a place in poor dry soils, where little else will grow—such as are found on dry banks or beneath trees. *L. garganicum*, from 1 to 1½ feet high, has in summer whorls of purplish blossoms. *L. Orvala* is taller and has deep red flowers in early summer. *L. maculatum*, a native plant, has leaves blotched with silvery-white.

LAPAGERIA (*Napoleon's Bell*).—A beautiful climber usually grown in the greenhouse, but hardy and flowering well in the open air in Cornwall and the south of Ireland; with care it would be found to do over a larger area round the coast. It forms a lovely picture at Caerhays, trained on a north-west wall, and flowers quite freely. Often at Christmas and onwards through the winter and spring it comes out beautifully; the rose and white and other forms have been tried, as well as the original form. Soil should be peaty with plenty of sand and leaf-mould. The great enemy of the plant is the slug, which destroys the young growths. The

plant may be nailed direct to a wall, or planted among choice shrubs to take its own way as a climber, and it might be well to try it in various aspects, as the conditions that suit it in the extreme south of England may not do so in all parts.

LARDIZABALA.—*L. biternata* is a handsome evergreen climber from Chili, hardy enough for walls in the south and coast districts; the foliage a deep green, the leaflets thick. Along the south coast it makes a beautiful wall-covering, reaching a height of 20 feet or more, but its inconspicuous purple flowers are seldom borne in the open air. It should be planted in well-drained soil.

LARIX (*Larch*).—One of the most beautiful trees of the north, and though much cultivated in our woodlands for its value as a timber tree, it is none the less precious for the lawn and home grounds. Belonging to the great Pine family, it has the summer-leafing habit of our ordinary trees, which enhances its charms, not only showing the form better in winter, but the fine colour of the budding leaves in spring, and the ripening leaves in autumn. A true child of the northern mountains, the Larch is hardy everywhere in our country, perhaps thriving better in the north, as in the case of the lovely old trees at Dunkeld, its only enemy being a dreadful parasitic fungus, which eats into the tree and mars its beauty and vigour. Other kinds of Larch are known, and some coming into cultivation, but it is not always easy to obtain them in a good state, and we have yet but little evidence as to their value. All are worth trial, though it is probable that none will ever rival the charms of the European Larch.

L. AMERICANA (Tamarack).—A slender tree, in its own country reaching a height of nearly 100 feet, but not thriving so well in England, and not so remarkable for beauty as our European Larch. It grows naturally in low-lying ground or swamps, and has not been fairly tried in our gardens, in which such ground does not often occur.

L. EUROPÆA (European Larch).—A tall and lovely tree with pendent branches emitting a delicate fragrance in the spring when budding. It is a native of the northern and central European Alps, and also the mountains of N. Asia.

L. GRIFFITHII (Sikkim Larch).—A Himalayan Larch, attaining in its own country to the height of a stately tree, but often dwarfed into an alpine bush. It bears large cones, and in our country has not yet been proved to be of great value.

L. KÆMPFERI (Chinese Golden Larch).—A beautiful tree of W. China, attaining in its own country a height of over 100 feet, and of good growth and habit in our country, though not so rapid as other species. A choice lawn tree, and also, when it can be got in any quantity in the form of healthy seedling plants, as a group in park or woodland.

L. LEPTOLEPSIS (Japan Larch).—In its own country this is described as a medium-sized tree resembling our European Larch, to which it is said to be inferior, but from experience gained by planters this is thought doubtful, as it promises very well indeed as a woodland tree, and is said to escape the Larch fungus canker, which is so deadly to the European Larch.

L. OCCIDENTALIS (Western Larch).—Said to be the noblest of all the Larches, from the mountains of N.W. America. It is of great height, but as yet little tried in our country, though promising well.

LASTHENIA.—A pretty hardy annual, *L. glabrata* being from 9 inches to 1½ feet high, with many rich orange-yellow blossoms. It should be sown in autumn or early summer, or in spring for later bloom. Like other annuals, it looks best in broad tufts, but care must be taken that the plants are properly thinned. The autumn-sown plants come in with the Iberis, Wallflowers, and early Phloxes. *L. californica* is a variety. California.

LATHYRUS (*Everlasting Pea*).—Hardy annual and perennial plants, several of them very beautiful for the garden. The perennial kinds of Peas are valuable, as they are of such free growth and last long in bloom. The kinds worth growing are not numerous, yet sufficient to keep up an unbroken display from May till October. They have long fleshy roots, which, when once established, will go on for years without giving further trouble or needing attention. Near a low wall or trellis they succeed admirably, and climbing gracefully drape such surfaces with veils of foliage and blossom. Upon banks, raised borders, or on the bold rock garden few things are prettier, and they never look better than when scrambling over the face of a rock, flowering as they go. The way to spoil them is to attempt to tie and train them in a stiff or formal way. They may be used with good effect in mixed borders, and they are valuable

for cutting from. The best varieties are pretty if allowed to grow through beds of medium-sized shrubs, and there are few effects in gardens prettier than that of the best white varieties when allowed to trail and bloom on a grassy place untrained in any way; a few tufts so placed are charming and live for many years. Most of the species ripen seed freely, and all may be divided either in autumn or spring.

The White Everlasting Pea *Lathyrus latifolius albus*).

L. GRANDIFLORUS (Two-flowered Everlasting Pea).—A very handsome plant for the early summer garden, succeeding anywhere, and, as the name implies, is the largest flowered species, the blooms being as large as those of a Sweet Pea. It is at its best in June and early July, the flowers usually borne in pairs, of a rosy-purple colour, the stems in good soil reaching 6 feet. It is one of the hardiest of the genus, and from its neat and free-flowering habit a very useful border plant, common in cottage gardens.

L. LATIFOLIUS (Everlasting Pea).—One of the hardiest and most easily cultivated of plants, thriving almost anywhere, even in courtyards amongst Flags. There are good white varieties and some striped with deeper coloured flowers than the old kind. The best white-flowered variety is The Pearl, an invaluable plant. An old tree-stump, or the side of a trellis or summer-house, is where they delight to grow undisturbed.

L. MAGELLANICUS (Lord Anson's Pea).—A beautiful blue-flowered Pea. It grows from 3 to 5 feet high; the flowers, many in a bunch, are of medium size, violet-blue with darker veins, opening in June and continuing until the end of July. This species is said to have been introduced by the cook of H.M. ship *Centurion*, commanded by Lord Anson, in 1744. S. America.

L. MARITIMUS (Beach Pea).—This is a very interesting native plant, inhabiting the seashore, and not so vigorous as the preceding kinds. It is, however, pretty and worth a place on open parts of the rock garden, in gravelly or gritty soil. The stems are prostrate, 18 inches to 3 feet long, sea-green in colour; flowers in summer, purple fading to blue. N. Europe, America, and Asia.

L. ODORATUS (Sweet Pea).—Perhaps the most precious annual plant grown. There are many ways in which it may be prettily used in a garden. A common method is to sow little patches in borders, the seed being generally that of mixed varieties, and by placing some stakes against them, to secure pillars of flower. Where it can be done, a hedge of Sweet Peas is an attractive sight, and sometimes Sweet Peas can be used to hide an unsightly place during the summer. Many people grow a hedge of Sweet Peas in order to yield a supply of cut flowers, but it is useless to grow the Sweet Pea except in good soil. Some sow in late autumn; this is not always satisfactory, though, when it succeeds, the result is good. By sowing indoors in pots or boxes about the middle of February, and gradually hardening off the young plants when they are 1 inch high, Sweet Peas may be made to acquire a sturdiness and toughness which, when they are planted out in good well-manured soil in April, conduces to rapid growth and to immunity from birds and slugs, which would otherwise attack the tender shoots the moment they appeared above the ground. The soil should be well trenched, and plenty of good stable manure should be worked in; and after the plants have been rather thickly dibbled in, supports of hazel stakes or netting should be placed round them. Then, with a little attention during dry weather and the regular removal of incipient pods, they yield abundance of beautiful and fragrant flowers all through the summer and autumn. When getting past their best

they should be cut down level with the top of the sticks, and the result will be that from the bottom to the top a new growth will spring up, and there will be an abundance of bloom until the end of October. There are now many fine varieties of the Sweet Pea, varying chiefly in colour.

Mr Eckford, of Wem, Salop, now so well known for the many varieties of Sweet Peas he has raised, in writing to me as to their good cultivation, says: "I do not like the Celery-trench fashion. If the ground is in a tolerably good state of cultivation—that is, has been fairly well dug—simply put on a fair coat of stable manure and dig deep, leaving it rough. In the beginning of March, when the soil is in good condition, thoroughly break with a fork, which will be sufficient preparation for the seed. To obtain the best results, clumps of two or three plants at 1 or 2 yards apart are better than continuous rows. In staking put three or four bushy stakes thus : : round the clump, but well away from the plants, which should have a few smaller sticks to lead them up to the taller ones. Round the whole put a string or bit of wire to keep them together, so that when the plants have grown up a sort of cone may be formed. The sticks should be, if possible, 8 or 10 feet high, as planted in this way the Peas will, if mulched with half-spent manure or any kind of refuse to protect the roots from hot sun, grow very strong and tall, and if the flowers are cut close every morning, so that no seed can form, they will continue to bloom till the frost puts an end to them. Should the weather prove dry, a soaking of weak manure water two or three times during the season would be beneficial. Should they from excessive growth get untidy, take the hedge-shears and clip them over neatly; they will in a few days throw out fresh growths and a profusion of flowers. If this way of growing Sweet Peas is adopted, it is a good plan to put the seed singly into small pots, and when the seedlings are strong enough to plant them out; in doing so make the ground very firm about them—they delight in firm ground. If the weather be dry tread well in."

Though none of the other annual kinds of Lathyrus rival the Sweet Pea, there are several pretty ones. Of these the Tangier Pea (*L. tingitanus*) grows about 3 feet high, and has small dark red-purple flowers; the Chickling Vetch (*L. sativus*) has flowers varying from pure white to deep purple. The variety *azureus* is a remarkably elegant dwarf kind with many clear blue flowers; *L. s. coloratus* has flowers white, purple, and blue; *L. Gorgoni*, about 2 feet high, pale salmon-coloured flowers; *L. articulatus*, *Clymenum*, and *calcaratus* are other pretty kinds for borders.

L. ROTUNDIFOLIUS (Persian Everlasting Pea).—A very old species, it is not so common as the larger kinds, though good from its earliness and freedom of flowering. It grows about 5 feet high, the leaves are nearly round, the flowers in large clusters, bright rose-pink, about an inch in diameter, and open in early June. It is of easy culture, and increased by division. Asia Minor and Persia.

L. SIBTHORPI (Early Everlasting Pea).—This is valuable because it is so early, being at its best in May and June. It does not grow very tall, rarely more than 2 or 3 feet, but it bears many fine spikes of delicate flowers of a beautiful purplish-red colour. It has been in cultivation at Oxford Botanic Garden for many years, and is said to have been introduced by Sibthorp. It flowers a month earlier than *L. rotundifolius*, and may be increased by division or seed, but is not so vigorous in ordinary conditions as the commoner Everlasting Peas, and should, until plentiful, be planted in warm borders.

L. TUBEROSUS (Tuber Pea).—A pretty low-growing kind, with flowers of a bright dark pink. It is found in many of our cornfields, and is cultivated in Holland for the tuberous roots, which are said to be edible. The tubers are about 2 inches long, broadest at the root end and tapering to the apex. It will be found a useful plant for the flower border, it being a true perennial, of neat habit, and very free-flowering. Europe and W. Asia; naturalised in England.

LAURELIA AROMATICA. — A noble evergreen tree from S. America, resembling the Common Bay in its fine appearance and fragrant leaves, and attaining a height of 30 feet or more in parts of Ireland and at Penjerrick, near Falmouth, Cornwall. Being scarce it has not yet been much tried, but like other Chilian shrubs, it is probably hardy in the milder parts of Britain. The leaves are thick, fleshy, studded all over with minute transparent dots, and have a fine aromatic smell. The flowers and fruits are not showy, coming as dense clusters nestling in the leaf-axils, and only on well-established plants. It is worth a trial in seashore districts.

LAURUS (*Poet's Laurel*).—*L. nobilis* is generally known as Sweet Bay, but its true name Laurel should be kept, for it is the true Poet's Laurel, the vigorous Cherry Laurel having wrongly taken the name. Gardeners in the larger places rather neglect it, and seldom plant it in groups and colonies, as they might well do on dry banks. The plant is interesting in every way

for its associations as well as for its beauty, and there are several varieties. It requires some care in transplanting, or it will be a long time rooting well. Warm and sheltered places are best for it, if possible on sandy or free soil; and it might be planted in different aspects with advantage.

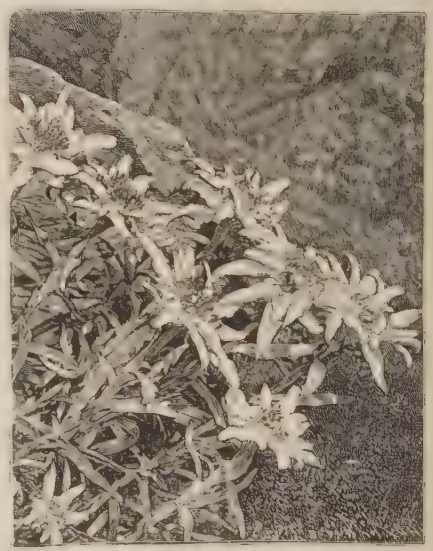
LAVANDULA (*Lavender*). — Grey, half-shrubby plants, mostly dwarf with greyish leaves and warm and grateful odour; mostly coming from warmer countries than ours, but, happily, one of the most beautiful survives on all our light and warm soils, and may be cultivated almost everywhere, as even if in winter killed in valleys and on cool soils it is easily raised by division or by seeds, and will escape all save the most severe winters. It succeeds best in an open sunny position, in light soil. The white-flowered variety is as sweet as the blue, and flowers at the same time. Though a bush, the Lavender has been for centuries associated with our old garden flowers. For low hedges, as dividing lines in or around ground devoted to nursery beds of hardy flowers, and many other purposes, it is admirable, and for dry banks and warm slopes. The forms of Lavender in cultivation in our islands are varieties of the wild kinds. The dwarf forms are very pretty and useful for edgings. One is sometimes called the Dutch Lavender. Lavenders want little care beyond occasional replanting after several years' growth.

LAVATERA (*Tree Mallow*).—For the most part vigorous and somewhat coarse annuals, biennials, and perennials, few of great value in the garden. The most useful is *L. trimestris*, a beautiful S. European annual, from 2 to 3 feet high, bearing in summer large pale rose or white blossoms, thriving in rich and light soil. It may be sown in the open border in autumn or early spring. Among the taller kinds the best is *L. arborea*, which has the look of a small tree, in the southern counties sometimes 10 feet high. The stem branches into a broad, compact, roundish, and very leafy head.

LEDUM (*Labrador Tea*). — Dwarf hardy shrubs, of which the best of the few species grown in gardens is *L. latifolium*, which represents the genus well. Its usual height is under 2 feet, but sometimes it reaches 3 feet; it is dense and compact, and has small leaves, of a rusty brown beneath. During the latter part of May it bears clusters of white flowers. *L. palustre* is commoner than *L. latifolium*, but being smaller in every part is not so good; it is dwarf and spreading, and its flowers are white. N. Europe and America.

LEIOPHYLLUM (*Sand Myrtle*).—*L. buxifolium* is a neat, pretty, and tiny shrub, forming compact bushes 4 to 10 inches high, with evergreen leaves resembling those of the Box. The small white flowers are borne in dense clusters in early summer, the unopened buds being of a delicate pink hue, and it is suited for grouping with diminutive shrubs, such as the Partridge Berry, Daphne Cneorum, the small Andromedas. A native of sandy "pine barrens" in New Jersey.

LEONTOPODIUM (*Edelweiss*). — A pretty and hoary-leaved alpine plant, *L. alpinum*, having small yellow flowers surrounded by star-like heads of leaves clothed with a dense white woolly substance. Some people are so pleased at seeing this plant in cultivation that they send letters to the



Leontopodium alpinum (Edelweiss).

Times to announce the fact; but its culture is not difficult on sandy soils, or even as a border plant, and it grows, too, luxuriantly in moist rich soils,

To keep a good stock of flowering plants, the old ones should be divided annually or young ones raised from seeds, which in some seasons ripen plentifully. It succeeds either on exposed spots of the rock garden or in an ordinary border, if not placed too near rank-growing things.

LEONURUS (*Lion's-tail*).—*L. Leonitis* is a distinct and handsome plant of the Salvia Order, allied to Phlomis, about 2 feet high, and bearing in summer whorls of very showy bright scarlet flowers. It is a Cape plant, and

The Lion's-tail (*Leonurus Leonitis*). Engraved from a photograph by Miss Wilmott.

is not hardy enough for our climate during the winter, even when protected by a cold frame, though in warm light soils, in the southern parts of the country, it thrives out of doors in summer. Near Paris, established plants placed out for the summer flower well. Cuttings strike freely in spring—more freely than in autumn—in a slight bottom heat.

LEPTOSIPHON.—Pretty Californian annuals. To produce the best results these charming plants must be strongly grown, and a good bloom can only be obtained by thin sowing. In light dry soils early autumn sowing is recommended, sufficiently early to permit the young plants to attain some size before the setting-in of winter. Fair success, however, may be looked for, especially in good soils, where spring sowing will often yield excellent results, while the advantages of autumn sowing are best seen in light sandy soils. Of the numerous kinds in cultivation the best is *L. roseus*, which is one of the most charming of hardy annuals, forming dense tufts, studded with rosy-carmine flowers. The very pretty *L. luteus* and its deeper-coloured variety *aureus* are scarcely inferior to *L. roseus*, which they resemble in habit, though with smaller flowers. The hybrid varieties of these are interesting for the singular variety of shades occurring among them.

LEPTOSPERMUM (*South Sea Myrtle*).—One of the few Australian shrubs which thrive in our country, often attaining much beauty in seashore gardens, not only in the south but in the west. Among the prettiest effects in flowering shrubs I have seen were from this in the garden of the late W. O. Stanley at Penross. It should have shelter and as warm a soil as we can give it, although it grows well near the sea and sea gales have power to injure it. It would have less chance in cold and inland places, and valleys where the frost is more severe. *L. scoparium*, var. *Nicholii*, with carmine-red flowers, is the most beautiful of these plants. It may be increased by cuttings, but best by seed.

LEPTOSYNE.—Californian plants of the Composite family, resembling some of the Coreopsis. *L. Douglasi* is a pretty half-hardy annual, about 1 foot high, and having large yellow flowers. *L. Stillmanni* resembles it, but is smaller. *L. maritima*, a perennial, is somewhat tender, and should be treated as an annual. It is a showy plant, about 6 inches high, and bears large bright yellow flowers. All these plants thrive best in an open sunny position in a light warm soil. The seeds should be sown early in heat, and the seedlings transplanted in May.

LEUCANTHEMUM (*Alpine Feverfew*).—*L. alpinum* is a very dwarf plant. The leaves are small, and the abundant flowers are supported on hoary little stems 1 to 3 inches long,

are pure white with yellow centres, and are more than 1 inch across. It is rather quaint and pretty, and well deserves cultivation in bare level places, on poor sandy or gravelly soil in the rock garden. It is sometimes known as Chrysanthemum arcticum and Pyrethrum alpinum. It is a native of the Alps, and is readily increased by division or seed. (For other species of Leucanthemum *see* Chrysanthemum.)

LEUCOJUM (*Snowflake*). — Pretty bulbs allied to the Snowdrop, but bolder and easily naturalised in rich valley soils.

Spring Snowflake.

L. ÆSTIVUM (Summer Snowflake).—A vigorous plant, flowers white drooping on stalks 1 to 1½ feet high, and clusters of four to eight on a stem, with leaves shaped like those of Daffodils. It blooms early in summer (in many places before the end of spring), and is pretty in mixed borders or on the margins of shrubberies. It thrives in almost any soil, but is strongest in deep alluvial soil, and is multiplied by separation of the bulbs. It is excellent for the wild garden, and increases as rapidly as the common Daffodil. A good form is the Gravetye variety.

L. VERNUM (Spring Snowflake).—A beautiful early flower about 6 inches high. The fragrant drooping flower resembles a large Snowdrop, the tips of the petals being marked with a greenish spot. It is excellent for the rock garden or borders, and thrives in a light, rich soil. Imported bulbs make little show for the first year or two, but when established they flower freely.

L. CARPATICUM.—Is considered a variety, bearing two flowers on the stem, flowering a month later. Other cultivated Snowflakes are *L. hyemale* and *L. roseum*; but these are very rare, and somewhat difficult to cultivate.

LEUCOTHOE.—Beautiful evergreen shrubs of the Heath family, most of them very old garden plants, and common in collections of American plants. There is a family likeness among the kinds, the best known being *L. acuminata*, 1½ to 2½ feet high, with slender arching stems, in early summer wreathed with white bell-shaped pretty flowers. *L. axillaris* is similar, and so are *L. Catesbæi* and *L. racemosa*, all of which are known under the name Andromeda. They are natives of N. America, hardy, thriving in light soil, preferring peat, and are suitable for the margins of groups of American shrubs and for low parts of rock gardens. A newer and very beautiful species is *L. Davisiæ*, introduced a few years since from California, and not so hardy as the others. It makes a neat little evergreen bush 2 or 3 feet high, and has small leaves on slender stems, in May bearing clusters of small white flowers. It is one of the choicest of evergreen hardy shrubs, and thrives with Rhododendrons and Azaleas in peat soil.

LEWISIA (*Spatlum*). — Remarkable and beautiful Rocky Mountain plants, allied to Portulaca, *L. rediviva* being very dwarf, 1 inch or so high, with a small tuft of narrow leaves, from the centre of which the flower-stalks arise. The blossoms are large for the size of the plant, being from 1 to 2½ inches across, and vary from deep rose to white. The roots are succulent, and can retain life a long time even when dry, and as the plant sometimes fails to develop leaves annually, it is wrongly supposed to be dead. It should be grown in sunshine, for it cannot be flowered in shade, and the crown kept

high and dry, though the roots should have moisture. A crevice in the rock garden is the best situation for it. There are several other kinds in cultivation, as *L. Cotyledon, Tweedyi* and *Howelli*. A warm situation in the rock garden is best, in a mixture of half soil and half-broken rock. They are easily raised from seeds, which are freely produced in hot summers, seedlings occasionally appearing by the score around the old plants. Sow while quite fresh. Oregon, Utah, and Rocky Mountains.

LEYCESTERIA (*Flowering Nutmeg*).—*L. formosa* is a distinct flowering shrub, and hardy, but much commoner in Ireland and the west than in the home counties. It is graceful in flower and form, and reaches 6 feet high in mild districts, with white flowers tinged with purple; the leafy purple bracts, succeeded in autumn by purple berries, are eaten by pheasants, and therefore it is planted in some places for covert. It thrives in various soils, and under trees. Himalayas.

LIATRIS (*Snakeroot*).—N. American perennials of some beauty, having the flower-heads arranged in long dense spikes. Some are effective border flowers when well grown, and well repay good cultivation. *L. elegans* grows about 2 feet high, and has pale purple spikes 1 foot or more in length. *L. pycnostachya*, 4 to 6 feet high, has deep purple flower-spikes from August to October. *L. spicata* is one of the handsomest and neatest, growing 3 feet high, and its violet-purple spikes continue long in beauty. *L. scariosa, squarrosa, cylindracea, elegans*, and *pumila* much resemble the foregoing, and, like them, succeed in any rich light soil, and are best here and there in among peat-loving shrubs or in good borders. Propagated by division in spring or by seed.

LIBERTIA.—Beautiful plants of the Iris order, of which some are hardy enough for the open border. *L. formosa* is beautiful at all seasons, even in the depth of winter, owing to the colour of its foliage, which is as green as the Holly; and it bears spikes of flowers of snowy whiteness like some delicate Orchid. It is neat, dwarf, and compact, and has flowers twice as large as the other kinds. They lie close together on the stem, and remind one of the old double white Rocket. *L. ixioides*, a New Zealand plant, is also a handsome evergreen species, with narrow grassy foliage and small white blossoms. *L. magellanica* is also pretty when in flower. All of these thrive in borders of peaty soil, but they grow slowly on certain loamy soils, living perhaps, but never showing the freedom and grace which they do on peaty soils. Increased by seed or by careful division in spring.

LIBROCEDRUS (*Incense Cedar*).—*L. decurrens* is a handsome evergreen tree of the mountains of Oregon and N. California, being very distinct in habit and found in the Sierra Nevada as high as 8,000 or 9,000 feet, is likely to prove a tree that will last in our climate. It is a beautiful tree for grouping with the choicer Pines; more columnar in habit than most, it does not require the wide spacing too often given to our trees in the pinetum. This tree, more than most other Pines, illustrates the mistake of supposing that conifers should be clothed to the ground with branches, as the natural habit of such trees is often to shed their branches as other trees shed their leaves. In its native country the stem of this tree is often quite free and clear of branches to a height of 70 feet, and this instead of taking from the beauty of the tree really adds to it.

LIGULARIA.—Large perennials, remarkable for bold foliage, one or two of great size, and strikingly distinct aspect, though not quite beautiful in flower. *L. macrophylla* is vigorous, with an erect stem nearly 3½ feet high, and very large glaucous leaves, the yellow flowers borne in a long spike. Free, moist, and somewhat peaty soil is the most suitable for this plant, which is multiplied by careful division in autumn or in spring; it is useful for grouping with fine-leaved herbaceous plants, but will seldom find a place in the select flower garden. Caucasus. *L. sibirica, Fischeri*, and *thyrsoidea* are fine-leaved plants, and worth growing with *L. macrophylla* for their foliage.

LIGUSTRUM (*Privet*).—The meanest of all mean shrubs, I think, but popular beyond all others, its weed-like facility of increase making it dear to those to whom something growing with a fungus-like rapidity is a treasure. It is not only that Privets are poor in

themselves, and as a rule without beauty of leaf or flower, but it is the number of beautiful shrubs they shut out, millions being annually sold to take the places of better things, and helping to kill the few that are planted near them or among them. The commoner sorts have no beauty whatever, and they all have the same vile sickly odour in summer days when they flower. Happy in the possession of the finest hedging and fencing plants of the northern world, Quick, Holly, Box, Yew, and Sweet Brier, nurserymen and jobbing gardeners make hedges and fences with these wretched Privets, fences which have the one poor quality of rapid growth, but which a man, let alone a beast, could walk through without effort. I have seen whole towns like Leicester with miles of these poor hedges, and they are even to be seen in pretentious show places, where one would expect people to know what a real fence meant.

Rich in native and other covert plants, I have seen the Privet recommended as a covert plant, for which it is useless beside the beautiful covert plants we have—Furze, Sloe, Sweet Brier, Juniper, and Wild Brier Rose—and above all things recommended as a covert plant near water, for which Nature has given us the most fitting of all in the spiry-leaved trees of the Willow and Dogwood order, of which there are many kinds.

As to beauty, the wildest Briers that vex our legs and sometimes our faces, have far more beauty, whether of leaf, form, flower, or fruit.

The land which has given us so many beautiful trees and shrubs and flowers, America, has nothing to do with the Privets, which are inhabitants of Asia and Europe, including China and Japan. Some of the species are evergreen, some summer leafing, and others in our mild climate hang between the two, and keep their leaves, except in very severe winters. They are all too quickly propagated by cuttings, and there are tropical species not hardy in our country.

The gain of the rapidity of growth of the Privet is more apparent than real, as it simply leads to equally quick decay if used as a fence plant or in any other way. The true fence plants, when fairly treated and put in the open in good condition, as all fence plants should be, are not by any means slow growers.

L. IBOTA.—A shrub from 5 to 8 feet high or more, of free habit and form, blooming freely in summer. The white flowers in spikes followed by dark berries. A native of China and Japan.

L. JAPONICUM.—A good evergreen kind, rather dwarf and shrubby, with pointed leaves 2 to 3 inches long, leathery, and of a deep green with straggling panicles of flowers.

L. LUCIDUM.—One of the best for erect and bold growth, growing 10 feet high or more, with firm lustrous leaves, 5 to 6 inches long by over 2 inches wide, and bold panicles of flowers 6 inches long in summer and autumn. It is a native of China, where it forms a tree.

L. OVALIFOLIUM.—One of the most popular varieties, and much used for forming hedges, as it retains its foliage through the winter better than the commoner Privet, but it is without much character as a shrub.

L. QUIHONI.—A Chinese Privet of a wiry dwarf character, with small leaves, and the branches covered with a purple down; flowering freely and rather showily.

L. SINENSE.—Not quite hardy on cold soils, but one of the best species, preferring a dry soil and flowering freely and rather handsomely on warm soils. It bears many purple berries, and it is a tall species, often attaining a height of 15 feet. China.

L. VULGARE.—This is the kind generally used for hedges and arbours, standing all ill-treatment in town and suburban gardens, and growing pretty well where nothing else will grow, but not worth having anywhere. It bears dark purple fruit like most of the kinds, and there are several varieties of it, especially variegated ones of little value.

LILIUM (*Lily*). — The Lilies are among the most beautiful bulbous plants, combining as they do stateliness and grace with brilliant and delicately-coloured flowers. The many kinds in cultivation afford a rich choice. All are beautiful, but some are better suited for particular localities than others. The habit and general character of the plants being so varied, their uses are likewise varied. Some are suited for the rock garden, others for the mixed border, many for the shrubbery—especially for the Rhododendron beds—while not a few are so robust that they are at home in the wild garden, holding their own against native plants. Much of the great northern world of mountain and forest is a Lily garden, and it is impossible to imitate such conditions in one's own garden, so that the best we can do is study the soil of our district

and find out the Lilies that grow best there. If one can get half a dozen kinds to grow in the natural soil of a garden, it is as much as we can expect. Lilies are very much governed by the nature of the soil, and to imitate their natural soil is not easy or always possible. Kinds that thrive in peat and leafy soil sometimes perish in loam and cold and heavy soil. After we find the kind that thrive in our soil, the next thing is to associate with them evergreen or other choice shrubs. The blooming period of some kinds is rather short, and we do not miss them so much if they emerge out of a shrub. Slight shade is often an advantage, and even grown in the open sun it is much the best to let them come out of a carpet or an undergrowth of some other plants; this will save the soil and give a much prettier effect.

Culture is important, but arrangement and grouping are even more so. There are few Lilies will grow in any ordinary soil; a good, rich loamy soil suits the greater number; others want plenty of sand, so as to keep the soil free; while others can be easily grown in ordinary soil if it is mixed with leaf-mould or peat. In nearly all cases Lilies are more vigorous and brilliant where partially protected from severe frosts, and the flowers last longer when sheltered from the scorching rays of the midday sun. The shrubbery border, among Rhododendrons (for those requiring peat), and the mixed border between shrubs and herbaceous plants, where the young shoots get a slight protection from the early frosts, are among the best situations. A very safe place is near the edge of a Rhododendron bed; soil that will grow Rhododendrons will grow most sorts of Lilies, and afford protection from "blight and spot," which in some seasons, notably when cold and wet, follow drought, greatly injure the growth and flowering of some species, even though the bulbs be unhurt. It should be remembered that bulbs of nearly all Lilies occasionally lie dormant a whole season, and push out luxuriantly the following summer, especially the Martagon tribe.

Manure should never be dug in with the bulbs, though they accept it gratefully if liberally applied as a top-dressing after they have been established a year. The only manure to be dug in at planting is rich peat and sand, in the proportion of two parts of peat to one of sea sand. Lilies may be divided into three classes—first, those that are best grown in pots, such as *neilgherrense*, *Wallichianum*, *philippinense*, and *nepalense*; also *Wallichianum superbum* (*sulphureum*), *Lowi primulinum*, *Bakeri*, new Burmese Lilies; and, in many soils and climates, *speciosum*, *auratum*, and *longiflorum*; secondly, those that are best grown out of doors in loamy soil; thirdly, those that are best grown out of doors in peaty soil. On light soils the following kinds do remarkably well: *L. candidum*, *longiflorum* and its varieties, *chalcedonicum*, *excelsum*, and the *speciosum* section; all of the *umbellatum*, *croceum*, and *elegans* type; also *tigrinum sinense*. For deep loamy soil the best kinds are *L. auratum*, *Szovitzianum*, *Humboldti*, the Tiger family, most of the Martagon group; while in an intermediate soil of leaf-mould, loam, and sand, we advise the planting of *Buschianum*, *philadelphicum*, *pulchellum*, *Browni*, *giganteum*, *tenuifolium*, *Krameri*, etc. The N. American forms require more peat and more moisture than the other groups. Lilies require, so far as their roots are concerned, a cool bottom, abundant moisture, and, for most kinds, a free drainage.

The propagation of Lilies is generally and most readily effected by separating the bulblets or offsets from the parent bulbs, and these, detached and grown in the same way as the parent, in the course of a year or two make good flowering plants. The scales of the bulbs afford a means of propagation; but this is a slower method. Raising Lilies from seed, if somewhat tedious, has much to commend it, and as many kinds in this country perfect seed in plenty, and the seedlings flower in three or four years, it is quite worth while. The finest kinds, such as the Japanese and Californian Lilies, are now so cheap that it is scarcely necessary to propagate from home-grown plants. It will be well, however, if, by rapid increase or otherwise, they become plentiful enough to adorn the smallest cottage gardens. Several Lilies, chiefly Japanese and Californian, are largely imported every year. As soon as received, all bulbs should be examined, and decaying matter should be removed. They should then be laid in soil, or, better still, cocoa-nut fibre in a moderate condition of moisture, until the bulbs recover

their plumpness and the roots are on the point of starting from the base. Then they should be potted or planted out as required; but, before this, decaying scales should have been again removed, as a few of the outside ones are often bruised in transit, and after they have been in the soil a little time decay sets in, which if not then taken off may contaminate the whole bulb. Of those so imported, *L. auratum* and *Krameri* should, when potted, be surrounded with sand, but some do well without it. The most difficult to import among the N. American Lilies are *L. Washingtonianum* and *L. rubescens*, since, as a rule, they suffer much more than the large, solid bulbs of *L. Humboldti*, or than those of *pardalinum*, *canadense*, and *superbum*. These solid bulbs should be treated as above directed, but *L. Washingtonianum*, *rubescens*, and *Humboldti* should not be potted, as they never succeed in that way; and indeed all the N. American Lilies do much better if planted out.

L. AURATUM.—Some forms have flowers nearly 1 foot across, with broad white petals copiously spotted with reddish-brown, and having broad bands of golden-yellow down the centre. The poorest forms have starry flowers and scarcely any markings. Several named varieties are particularly distinct, and the chief are *cruentum* and *rubro-vittatum*, which have deep crimson instead of yellow bands down the petals. *Rubro-vittatum* is a variety with a very distinct bulb, the foliage is darker, and it is a hardier, better doer than the type. *Platyphyllum* is also more easily grown than the type, more vigorous, and quite the best generally. The white-petalled variety of *platyphyllum*, generally called *virginale*, is perhaps one of the most beautiful forms. *Wittei* and *virginale*, the flowers of which have no colour but the golden bands; *rubro-pictum*, with a red stripe and spots; *platyphyllum*, with very large flowers and broad leaves; and Emperor, a grand flower, with reddish spots and centre. There are also some beautiful hybrids raised between *L. auratum* and some of the other species; for example, *L. Parkmanni* (between *L. auratum* and *L. speciosum*), which has large white flowers banded and spotted with carmine-crimson. It grows freely in peat or loam, a mixture of both with a little road-scrapings best fulfilling its requirements. Where the soil is naturally poor, light, and sandy, it should be taken out to a depth of 18 inches, and replaced with the compost above mentioned, or some fine well-enriched mould. The bulbs should be planted in this, and as soon as growth commences in spring, should be mulched with decomposed manure or short grass. If the garden soil be fairly good, it need only be well stirred and manured, but the manure should be thoroughly decomposed. A sheltered situation should be chosen, and, if possible, screened from the midday sun, and protected from westerly and southerly gales and from heavy driving rains; for this Lily is very susceptible to injury by cold draughts and cutting winds. No better place can be chosen than a snug nook sheltered from the north and east by shrubs, but at the same time open to the sun. The best examples that have been seen were grown in a Rhododendron bed, and planted in a deep, moist, peaty soil, where they have been for years undisturbed. When planted among other things the young and tender uprising shoots are greatly protected in spring. As to propagation, there is scarcely any need to enlarge upon that, as bulbs are imported so plentifully; and it is only necessary to separate the young bulbs and replant them in good soil. Those who increase this Lily from seed must be prepared to exercise a little patience, as the seed is long germinating, and the seedlings are several years before flowering. The seed should be sown, as soon as ripe, in a frame. The seedlings should be planted out as soon as the bulbs are of an appreciable size.

L. BROWNI.—It is readily distinguished from any other kind by the rich brownish-purple markings on the exterior of the blossoms, which in well-grown plants are sometimes 9 inches in length. It is hardy and vigorous, and succeeds without giving much trouble. In a soil and position which suit *L. auratum* it flourishes, and need only be lifted every few years and replanted in fresh rich soil. It grows from 2 to 4 feet high, and has deep green foliage distinct from allied kinds. The variety *Colchesteri* is handsome.

L. BULBIFERUM is one of the handsomest of European Lilies, and is about 2 feet high. It bears large crimson flowers shading to orange. The variety *umbellatum* is finer and stronger, and has large umbelled clusters of flowers. This Lily is generally distinguished from its congeners by bulblets on the axils of the leaves. It grows freely in ordinary soil, and flowers in early summer. A capital plant for bold groups, and thriving under partial shade or in the open.

L. CANADENSE (Canadian Lily).—This beautiful flower is among the oldest of cultivated Lilies. It is 2 to 4 feet high, and bears, on slender stems, terminal clusters of drooping blossoms usually orange, and copiously spotted with deep brown. It also occurs with red flowers (*rubrum*) and with yellow flowers (*flavum*).

L. parvum, *L. Bolanderi*, *L. Grayi*, and *L. maritimum* resemble it, and like it require a partially-shaded position and a moist, deep, peaty soil enriched by decayed leaf-mould. It flowers late in summer, and is very attractive in bold masses, such as are often seen in nurseries about London.

L. CANDIDUM.—One of the best-known and loveliest Lilies, seen in almost every cottage garden, and producing snow-white blooms in summer. It dislikes coddling or being meddled with, and thrives best when undisturbed for years in good garden soil. Any attempt to deal with it like the more delicate ones generally results in failure. The best-flowered plants are in old gardens, where the bulbs are allowed to run as they like with no attention whatever. In bold masses, no plants can compare with the common white Lily when in bloom. It is so fair a flower that there is scarcely a place which a good plant or well-grown group of it will not adorn. There are two forms in gardens—a thin petalled and a broad petalled form, with petals overlapping and dark stem. This is the handsomest and most vigorous. There is also a late tall variety called *speciosum*, a beautiful one. It thrives best on calcareous soils.

L. CHALCEDONICUM (Scarlet Martagon).—A very old and handsome Lily, of tall and graceful growth, and bears several pendulous, vermilion, turban-shaped blossoms about the end of July. It is one of the easiest to cultivate, thrives in almost any soil, and is best when well established and left undisturbed. There are a few varieties, *majus* being the largest and best. The others are *græcum*, rather taller than the type, and having smaller flowers; *pyrenaicum*, with yellow flowers; *Heldreichi*, tall and robust, flowering a week or two earlier; and *maculatum*, a very handsome form. Native of Greece and Ionian Isles. Similar to the scarlet Martagon is the Japanese *L. callosum*, a pretty Lily, 1½ to 3 feet high, with slender stems, bearing in summer several brilliant scarlet blossoms. *L. carniolicum*, of a similar character, is 1 to 3 feet high, and produces in early summer turban-shaped nodding blossoms of bright vermilion or yellow.

L. CROCEUM (Orange Lily).—One of the sturdiest and hardiest, and therefore one of the commonest of Lilies. It grows in almost any soil or position, and bears in early summer huge heads of large rich orange flowers. In the mixed border it is attractive, but shows best on the margin of a shrubbery, where its stems just overtop the surrounding foliage. It is always best after some years' growth. Lilies are said not to like manure, but we have never seen this one so fine as when in well-manured ground after several year's growth.

Lilium candidum (White or Madonna Lily).

L. DAVURICUM.—A slender European Lily with moderate-sized red flowers, spotted with black. Like *L. elegans*, it has several varieties, the chief being Sappho, incomparable, *erectum*, *multiflorum*, Don Juan, and Rubens. Being

strong growers and flowering freely, they are fine plants for the mixed border, for margins of shrubberies, or for groups or masses, thriving in partial shade as well as in sunny places.

L. ELEGANS.—One of the best and most generally known of the early Lilies. It is commonly known by the name of *Thunbergianum*. It is very variable, and there are about a dozen named varieties. The type grows about 1 foot high, and has stout erect stems, which bear numerous narrow leaves, and are terminated by a bright orange-red flower, 5 or 6 inches across. A native of Japan, flowering with us about

Lilium giganteum.

the beginning of July. Most of the varieties are so distinct as to merit a slight description. They are—*marmoratum* and *marmoratum aureum*, two of the earliest forms; *alutaceum*, not more than 9 inches high, with a large, pale apricot-coloured flower, copiously spotted; *armenaicum* (*venustum*), about 1½ feet high, with several moderate-sized flowers (in autumn) of a rich glowing orange-red; *atrosanguineum*, about 1½ feet high, with large flowers of rich deep crimson; *Batemanniæ*, about 4 feet high, with several moderate-sized flowers, in late summer, of a rich unspotted apricot tint (*L. Batemanniæ* and *L. Wallacei* are put by Mr Baker as allied to *L. Leichtlini* and the Tiger group. I do not consider the above two species to be *Thunbergianum*) · *bicolor*, about 1 foot high, with large flowers orange-red, flamed with a deeper hue; *brevifolium*, 1½ feet high, with flowers pale red and slightly spotted; *citrinum*, like *armenaicum*, but taller; *fulgens*, 1 to 1½ feet high, with four to six large flowers of a deep red; *sanguineum*, 1 to 1½ feet high, with one or two large blood-red flowers; *L. Horsmanni*, a dwarf form with richly-coloured flowers of a blood-red mahogany tint, and *Splendens*, the early form of *L. Wilsoni*; Alice Wilson, the beautiful, scarce, lemon-yellow, dwarf form; *Van Houttei*, 1½ feet high, with very deep crimson-red flowers, spotted with black; *Wallacei*, 2½ feet high, with rich orange-red flowers, spotted with black; *Wilsoni*, 2 feet high, with large apricot-tinted, yellow-striped flowers—one of the latest to bloom. All the *L. elegans* group are perfectly hardy; they grow vigorously in almost any soil, but prefer a deep loamy one with an admixture of peat. They like an open position, and are suitable for planting around the margins of shrubberies. Small groups are beautiful in the open spaces that should exist in every shrubbery or Rhododendron bed. They are all excellent border plants, and the dwarf kinds may be introduced into the rock garden. In all cases they must be placed in sunny situations.

L. GIGANTEUM.—A noble Lily of huge growth, and in aspect different from any other. Its bulb is large and conical, and develops spreading tufts of handsome shining heart-shaped foliage. The flower-stems are stout and erect, 6 to 10 feet high, terminated by a huge raceme, 1 to 2 feet in length, of about a dozen long nodding fragrant flowers, which are white and tinged with purple on the inside. It is one of the hardiest Lilies, and gives very little trouble. It flourishes best in a sheltered position, where there is an undergrowth of thin shrubs to protect the growth in spring. The soil must be deep and well drained, and must consist of sandy peat and leaf-mould, strengthened by a little rich loam, and plenty of rich manure. At Wisley this noble species is quite at home, and gives many of its towering spikes annually. After flowering and maturing seeds the old bulb perishes, the plant being perpetuated by offsets, which flower three or four years later. Seeds are abundantly produced, and should be sown when ripe, the seedlings appearing the following spring in their hundreds. Seedlings take about eight years before flowering, and should be planted in their permanent positions when about half grown. The planting of giant bulbs fully grown is a fatal error. Nepal.

L. HANSONI.—A handsome Japanese species, about 4 feet high, having whorls of bright green leaves and a terminal spike of about a dozen bright, orange-yellow, brown-spotted flowers. It flowers about the beginning of June, is quite hardy, and succeeds in sheltered situations in a soil consisting of two parts of peat, one of loam, and one of road-scrapings.

L. HENRYI.—Of a splendid constitution and one of the most reliable, it is also

quite a giant in its way, often attaining 7 to 8 feet high, producing twenty or thirty orange-coloured reflexing flowers in a pyramidally-framed head. A lime-loving species, it is quite happy in deep loam, leaf-soil, and old manure. The bulbs attain to a huge size, and being a stem-rooting kind, should be planted 8 inches deep. Plant in November. C. China.

L. HUMBOLDTI.—A very graceful Lily. The singular beauty of the blossoms and the elegant manner in which they droop from their slender stalks, make it most desirable, and its flowers, on account of their great substance, are more lasting than any other Californian Lily. The stout and purplish stems attain a height of 4 to 8 feet. The leaves are in whorls of from ten to twenty each, and are of a bright green. The flowers differ considerably in colour and markings, but are usually bright golden-yellow, richly spotted with crimson-purple.

L. JAPONICUM.—Or *Krameri* as it is more often called, possesses the most delicate beauty of any. The flowers are of the shape and nearly as large as those of *L. auratum*. They are either pure white or delicate rosy-pink—generally the latter. *L. japonicum* is 1 to 3 feet high, and sometimes bears five blooms—but generally only one or two. It is somewhat difficult to grow, owing to its delicate constitution, but the best specimens produced in this country were grown under the same conditions as *L. auratum* and *speciosum*. On account of its beauty it deserves the most careful attention. It is a lovely plant for a select spot between choice dwarf shrubs, in free peaty soil or deep sandy loam with vegetable soil in it. When Mr Kramer first sent me this Lily he wrote that he obtained it from a mountainous slope at a high altitude.

L. LEUCANTHUM.—Though perfectly distinct for garden purposes, this is really a form of *L. Browni*, brought from the Chinese province of Yunnan, *L. myriophyllum* and *L. formosum* (also best regarded as forms of *L. Browni*) replacing it in adjoining provinces. The stems of *L. leucanthum* are stout, 3 to 4 feet high, and the leaves narrow and of a lustrous green. The fragrant flowers, borne two to four together, are of a long funnel-shape, ruddy-brown on the outside and milk-white within, with a rich yellow throat. Being at its best in August, when no other Lily of the same group is in flower, it promises to be an important gain, the more so as the plant is vigorous and hardy.

Lilium Humboldti.

L. LONGIFLORUM (White Trumpet Lily).—This is among the most beautiful and most valuable of garden Lilies. The typical form is 1 to 3 feet high, the stems in summer being terminated by reflexed, tubular, waxy-white flowers, which are sweetly scented. There are several varieties, the best being the early variety now

called *præcox*, of rather dwarf habit, with long, pointed, three-nerved, dark green foliage; the flowers are of great substance, tubular, and but little reflexed at the tip. This flowers a fortnight earlier than the type, bears larger and more numerous flowers, and is in every way superior to it. *Takesima* is recognised by a purplish tint on the exterior of the blossoms and on the stem. *Wilsoni*, or *eximium*, the finest variety, has bold dark foliage, and is nearly 4 feet high, with numerous flowers about 9 inches long. *Takesima* is the latest to bloom. *Mme. Von Siebold* is also a fine variety. *L. longiflorum giganteum* is the variety generally obtained from frosts. *L. longiflorum* is so early that, unless protected by the leaves of evergreens, its growth is apt to be checked. A well-drained light loam, well enriched with leaf-mould, suits it admirably. *L. Wilsoni* is benefited by a lighter soil and by a warmer and more sheltered position. When just pushing the growth in spring, it is advisable to encircle the plants with a few dead branches, if unprotected by shrubs. Where this fine species and its forms fail in the ordinary soil of the garden, success may be ensured by making a special soil of rotten manure, leaf-mould, or cocoa-fibre. In such a mixture, so free and open that the hand could be pushed

Lilium longiflorum Harrisi.

Japan; strong bulbs will send up a head of from eight to twelve flowers widely opened; the foliage is bright green; under glass this Lily may easily be forced. *L. formosanum*, the variety from Formosa, has its flowers ribbed and flushed with rosy-brown; they are somewhat smaller in size than the type. *L. Harrisi* is *L. longiflorum* altered by growth in a tropical climate, Bermudas, S. Africa, etc. Jama-Jura and Liukiu are native names for the varieties mentioned. The variegated-leaved form (*albo-marginatum*) is desirable, as the vegetation is distinct and constant *L. longiflorum* and its varieties sometimes bloom well in borders, but care should be taken that they are not injured by spring down below the bulb, we have seen them perfectly grown where the natural soil was too stiff and impervious. The hardier varieties are admirable for artistic gardening, their fine forms being very effective when tastefully grouped on the fringe of beds of choice bushes and when touching and seeming to spring out of the grass. They are also good in beds either specially devoted to them alone or in combination with other plants. Similar to *L. longiflorum* are *L. neilgherrense*, *philippinense*, *Wallichianum*, and *nepalense*, but none is hardy, and all are poor and unsatisfactory, except, perhaps, for the greenhouse.

L. MARTAGON (Turk's-cap Lily).—This is so common that we need only mention

its varieties. These are very fine, especially *dalmaticum*, which has flowers larger

White Martagon Lilies.

than the type, and of a shining blackish-purple, a contrast to the loveliness of the pure white variety (*album*). *Cattaniæ* is a form of *dalmaticum*, and scarcely differs from it. Like the type, the varieties thrive freely in a good loamy soil; they are perfectly hardy and are rather partial to shade, growing freely in grassy places, open woods, or copses. Some of the finer varieties are good garden plants, and should be grouped in the spaces between hardy Azaleas or similar flowering bushes.

L. MONADELPHUM.—A magnificent Lily of noble growth. The stout flower-stems vary from 3 to 5 feet in height, and are terminated by a pyramid of six to twenty turban-shaped flowers, ranging in colour from a rich canary-yellow to a pale lemon-yellow. Some forms have spotted flowers, and some are much larger than others. The varieties are known as *L. Szovitzianum, colchicum*, and *Loddigesianum*. *L. monadelphum* thrives best in moist, deep, loamy soil, well enriched with good manure at the time of planting; but does not show its true character till it has been planted several years. It rarely fails, and is one of the least disappointing of all. It may be readily increased from root-scales, a fact which is taken advantage of by many cultivators, and is the only method of increasing and keeping pure any really good or marked variety. Seed is, however, the readiest way of acquiring a stock of this truly charming plant. The seeds are usually sown in large shallow pans as soon as ripe, and remain there for two years, by which time the bulbs have attained a considerable size; they are then planted in beds in rows 6 inches apart, with 4 inches between the bulbs, replanting when necessary. By this treatment flowers are frequently produced by seedling plants four or five years after sowing.

L. PARDALINUM (Panther Lily).—One of the handsomest of the Californian

Lilium monadelphum, var. *Szovitzianum*.

Lilies, and one of the most valuable for English gardens, as it makes itself thoroughly at home in them and grows

as vigorously as in its native habitat. It is 6 to 8 feet high, and has large drooping flowers of bright orange, spotted with maroon. There are several varieties, the most distinct being—*Bourgæi*, one of the finest, having stout stems 6 to 7 feet high, with twelve to twenty flowers of bright crimson, shading to orange, and freely spotted with maroon, and blooming a fortnight later than any other; *pallida*, a dwarf variety, scarcely 5 feet high, bears flowers nearly double the size of the type, and paler in colour; *californicum*, a more slender variety, 3 to 4 feet high, and the brightest in colour; *pallidifolium* (*puberulum*), a small form, with lighter flowers; and *Robinsoni*, a robust variety, with stout stems 7 to 8 feet high, and with massive foliage, large flowers of a bright

Lilium Parryi.

vermilion shading to yellow, and freely spotted. This last is the noblest, and should be grown if possible. The Panther Lily is one of the most satisfactory of all Lilies; it has a strong constitution, increases rapidly, soon becomes established, and rarely pines away, as many kinds do. It likes a deep, light, good soil, enriched with plenty of decayed manure and leaf-soil, where the roots can receive ample moisture. It should always be in a sheltered position, like the sunny side of a bold group of shrubs or low trees. In a special bed the near shelter of hedges is desirable, though their roots should be kept away. Bare borders are not the places where this noble Lily does or looks best—there is no shelter or support for plants which in their own country have many shrubs for companions and are sheltered by the finest trees of the northern world.

L. PARRYI.—A new and distinct species from California, elegant and slender in growth, and 2 to 4 feet high, bearing graceful trumpet-shaped flowers of rich yellow, copiously spotted with chocolate-red, and delicately perfumed. The flowers being borne horizontally, render it very distinct. It grows in elevated districts in S. California, in boggy ground. Not much is known of its culture, but the finest plants have been produced where the soil was two-thirds common peat and one-third loam, with plenty of coarse sand. A bed in a shady spot was selected, in which the bulbs were placed at a depth of 4 inches, having underneath about 1 foot of the soil. Here the strongest bulbs threw up stems 4 feet in height, and the greatest number of blossoms on one stem for the first season was six.

L. POLYPHYLLUM. — A rare and beautiful Lily, 2 to 4 feet high, and having large turban-shaped flowers of a waxy white, copiously spotted and lined with purple. N. India. Mr M'Intosh of Duneevan, Weybridge, who has been most successful with it, writes: "Sandy loam, peat, or leaf-mould, sand, and charcoal, with a slight admixture of pulverised horse-droppings, and good drainage under the bulbs, are all I have to tell; and I think early staking and tying may have something to do with many growing taller than they otherwise might."

L. POMPONIUM. — This lovely Lily must not be confounded with the *L. pomponium* usually sold as such, this atter being simply the red variety of *L. pyrenaicum*. *L. pomponium* is elegant and vigorous, and blooms earlier than the varieties of *chalcedonicum* and *pyrenaicum*, to which it is related. It is about 3 feet high, is erect, and has long linear leaves. The flowers appear in a lax raceme 1 foot through, and a well-established plant will bear as many as twenty flowers. In rich loam it grows luxuriantly in sunshine or shade, and no difficulty is experienced with either home-grown or imported roots. Maritime Alps.

L. REGALE.—This, the handsomest Lily of the *Browni* group, and formerly known as *L. myriophyllum*, is nearly allied to *L. leucanthum* (itself a form of *L. Browni*),

from which it differs in its narrow one-nerved leaves densely crowded on the stems, the absence of bulbils, its earlier flowers, and other minor details. The grey-green stems vary from 1½ to 5 feet in height, bearing fragrant funnel-shaped flowers 5 or 6 inches long, shaded with purple on the outside, and pure white shading to clear yellow on the inside and in the tube. It is not a Lily for peat, and thrives best in cool loam, leaf-mould and sand, preferring distant shade. Perfect drainage is essential. Seeds are produced abundantly, and as the seedlings flower when three years old the wait is not great. Seed may be sown in drills in the open or in frames.

L. SPECIOSUM, or *lancifolium* as it is erroneously called, is one of the most popular for pot-culture, and is no less desirable for the open air, though, being somewhat delicate, it is grown to perfection under glass. It is well known, and we need not describe it. The chief varieties of it are the true *speciosum*, which has large deep rosy blossoms, richly spotted; *vestale*, pure white; *album*, white or faintly tinged with pink; *rubrum*, deep red; *roseum*, rosy-pink; *punctatum*, white spotted with pink; *Krætzeri*, very large white flowers with greenish stripe on the exterior; *album novum*, a somewhat finer variety with light orange anthers, and broader petals of great substance; *fasciatum album* and *fasciatum rubrum*, two monstrous varieties bearing numerous flowers on flattened stems. Among the more beautiful Japanese forms are *roseum*, *superbum*, and *formosum*, and *rubrum macranthum*, *cruentum*, *compactum*, and, darkest of all, *Melpomene* (not the American *Melpomene*). The *speciosum* Lilies are stem-rooting, and should be planted deep and generously treated. All the varieties require shelter from winds and draughts, and a rich loamy soil mixed with peat and leaf-manure. They flower for the most part in September, and last longer in bloom than many other Lilies. In good soils, very happy use can be made of these handsome Lilies in warm and sheltered places where their blooms may be fully developed.

L. SUPERBUM (Swamp Lily).—One of the stateliest of N. American Lilies, bearing late in summer beautiful orange-red flowers, thickly spotted. It may be recognised at once by its purple-tinged stems, which rise 5 to 10 feet high, and which are very graceful, waving with the slightest breeze. A pyramid of flowers terminates each stem. *L. superbum* delights in moist deep soil consisting chiefly of peaty and decayed leaf-manure, and is one of the best Lilies for growing in shady woods when the undergrowth is not too rank. In the garden it should have snug glades and nooks protected by shrubs, and moist rich soil.

L. SUTCHUENENSE.—One of the showiest Lilies introduced of recent years. A good idea of it is gained by likening it to a miniature form of the old Tiger Lily, but with no bulbils, narrower leaves, and earlier flowers on very long flatly-spreading stalks. The hairy stalks vary in height from 1½ to 6 feet, with many narrow leaves and a head of bright scarlet flowers covered with black dots, which vary in density and are sometimes wanting altogether. It comes from the grass-clad mountain slopes of the Chino-Thibetan frontier, and is commonly grown by the peasants on the roofs of their houses, and the bulbs used as food.

L. TENUIFOLIUM.—A most elegant dwarf Lily, especially valuable for earliness in flowering. It is 1 to 1½ feet high, and has narrow leaves on slender stems, furnished with a cluster of about a dozen brilliant red turban-shaped flowers, which shine like sealing-wax. It succeeds in open warm borders of light sandy loam, but is all the better for a hand-light or frame, as it flowers very early. Siberia and N. China. *L. callosum* and its form *stenophyllum* are similar but less showy.

L. TESTACEUM (*Nankeen Lily*).—This is a distinct coloured Lily, and should always be grown, being of easy culture and thriving in any ordinary soil, though preferring one that is peaty. It has the growth of

Lilium testaceum.

the white *L. candidum*, but the flowers are a delicate apricot, or nankeen, colour. When well grown it is 6 or 7 feet high, and bears several flowers in a large spreading head in late July. Other names for this Lily are *L. excelsum* and *isabellinum*. Excellent for deep sandy loam and leaf-soil, and endures sun and heat better than most Lilies. It is one of the plants that grow freely in London.

L. TIGRINUM (Tiger Lily).—The common kind is handsome, but the variety *splendens* is much finer, having larger flowers with

larger spots, is produced later, and grows 7 feet high. *Fortunei* is an early form and as desirable as *splendens*. The double-flowered variety (*flore-pleno*) is showy and vigorous. *Erectum* also is distinct and desirable. *L. pseudo-tigrinum* and the varieties of *Maximowiczi*, though referred to other species, much resemble *L. tigrinum*. The Tiger Lily is very easy of cultivation, thriving best in deep sandy loam with an open but sheltered position. The earliest varieties begin to flower at the end of August, and the latest last till the end of October. The Tiger Lily may be quickly propagated by the bulblets, which form in the axils of the leaves.

L. WASHINGTONIANUM.—A lovely Californian Lily, 2 to 5 feet high, bearing a cluster of large, white, purple-spotted flowers that become tinged with purple after expansion. Nearly allied to this, and by some considered a variety, is *L. rubescens*, which has smaller flowers, which are of a pale lilac or nearly white. These flowers are erect—not horizontal, as in the Washington Lily. Neither *L. Washingtonianum* nor *L. rubescens* is easy to grow owing, probably, to their being but little understood at present. The best results have been obtained in partially-shaded situations, in loose, peaty, well-drained, but moist soil.

L. WILLMOTTIA.—A new, choice, and distinct species of much promise from W. China. The plant is 3 to 4 feet high, the stem crowded with narrow linear leaves and surmounted by a dozen to fifteen large Turk's-cap-like flowers of a glistening red colour, and which depend gracefully on thin, wiry, 6-inches-long footstalks. It is one of the most floriferous of Lilies for July and early August. It is a stem-rooting kind, and should therefore be planted deep—not less than 6 inches. It does best in cool places in deep loam and leaf-soil, or in positions where the ground is screened from the hottest sun by dwarf shrubs.

LIMNANTHEMUM (*Fringed Buckbean*).—*L. nymphæoides* is a pretty native water plant, growing in ponds or slow streams, with floating leaves, and bright yellow flowers 1 inch or more across. One of the prettiest of floating water plants, flowering for months in the summer and autumn. Wild in the southern and eastern counties, and naturalised in other districts. Division.

LIMNANTHES.—A vigorous though dwarf hardy annual, valuable because so early; *L. Douglasi* has yellow and white flowers, and there is a pure white variety. Few annuals are hardier, severe winters not injuring it, and it requires neither a deep nor a rich soil, but thrives where the earth is poor as well as in ordinary garden soil. It often sows itself on light soils, and gives no further trouble; but if wanted for a special purpose in spring, the seed should be sown in autumn in boxes or in the open ground; for summer-flowering, sow in the spring. Plains of California and foothills of the Sierra Nevada.

LINARIA (*Toadflax*).—Includes some beautiful garden annuals and perennials, varying from dwarf alpines to tall, coarse plants.

L. ALPINA (Alpine Toadflax).—Forms dense, spreading, dwarf, and silvery tufts, covered with bluish-violet and intense orange flowers. It is usually biennial; but in favoured spots, both wild and cultivated, becomes perennial. It sows itself freely, being one of the most charming subjects that we can allow to "go wild" in sandy, gritty earth, or in chinks in the rock garden. It is found on moraines and in the debris of the Alps and Pyrenees.

L. ANTIRRHINIFOLIA.—This elegant little rock plant forms a very neat spreading mass about 2 feet across, and about 6 to

Linaria antirrhinifolia.

8 inches high, and has the advantage of not spreading so rapidly as some of its congeners, and its bright purple flowers are produced incessantly during the summer and autumn. The plant is of the easiest possible culture, and can be

highly recommended for the rock garden.

L. CYMBALARIA (Ivy-leaved Toadflax).—Often drapes walls in a graceful way, and is grown by cottagers as a window plant, a common name for it being "Mother of Thousands." A moist half-shady place best suits it, and the white variety is even prettier than the species.

L. DALMATICA.—A handsome plant, 3 to 5 feet high, much branched, and in summer has a profusion of large showy sulphur-yellow blossoms. It thrives best in warm places in light well-drained soil, and when once established can be eradicated with difficulty.

L. MACEDONICA.—A new and distinct plant, from 2 to 3 feet high, and throwing up shoots from the base. It differs from *L. dalmatica* in its broader leaves, and is quite hardy.

L. PURPUREA.—A pretty kind with spikes of purple flowers, and one occasionally sees it on old walls, as it thrives well in dry spots.

L. TRIORNITHOPHORA. — A beautiful plant when well grown, 1 to 1½ feet high, and with large purple long-spurred flowers in whorls of three. It is rather delicate and, though perennial, should be raised yearly from seed.

L. VULGARIS (Common Toadflax).—Is very pretty as one sees it growing wild, but is also a good garden plant. The British variety *Peloria* is a handsome Toadflax, flowering freely after midsummer in a warm sunny border, and is effective in a mass.

A few other perennial Linarias that may be mentioned are *L. hepaticæfolia* (Hepatica-leaved Toadflax), from Corsica, which is nearly always in flower in summer and autumn; *L. saxatilis*, with dark brown and yellow flowers; and *L. anticaria*, a good rock plant, forming little tufts and sowing itself freely. The finely-veined flowers are dull white tinged with lilac. A very dwarf pretty plant in flower all summer is *L. pallida*, from Italy.

Some of the annual species of Toadflax are among our prettiest border flowers, growing about 1 foot high, and very effective in broad masses. Seed should be sown in ordinary garden soil in early spring, and the seedlings will flower in July and August. The best are *L. reticulata*, with small purple flowers; the variety *aureo-purpurea* being a charming plant, with flowers which vary from rose-purple to dark orange. *L. bipartita* is also very variable, the colours ranging from deep purple to white. *Perezi* has small yellow flowers; whilst the flowers of *maroccana* vary from violet to pink; and those of *multipunctata*, the dwarfest of the group, are black spotted with yellow.

LINNÆA (*Twin Flower*).—A little evergreen creeper, *L. borealis* having slender upright stalks bearing two flowers each, delicately fragrant white, often tinged with pink, and drooping. It is usually found in moist woods, where it forms a dense carpet. I have often seen it thriving where the air was pure and the soil suitable; and it is excellent for a moist rock garden, growing rapidly, and forming a charming fringe to groups of small alpine shrubs, on cool parts of the rock garden. N. Europe, Asia, and America; also Scottish Mountains.

LINUM (*Flax*).—A very interesting group of plants, too often neglected in gardens, though remarkable for beauty of colour, and including one of the most useful plants that gives us linen and also the best paper for the books meant to last.

L. CAMPANULATUM (Yellow Herbaceous Flax).—A perennial with yellow flowers on stems 12 to 18 inches high, distinct and worthy of a place. A native of the south of Europe, it flowers in summer and flourishes freely in dry soil on the warm sides of banks or rock gardens. Similar to it is *L. flavum*, or *tauricum*, also a handsome and hardy plant, with yellow flowers; but *L. arboreum*, a shrubby kind, also with yellow flowers, is not hardy in all districts, though where it thrives it is a pretty little evergreen bush for the rock garden.

L. GRANDIFLORUM (Red Flax) is a showy hardy annual from Algeria, with deep red blossoms. By successive sowings it may be had in bloom from May till October. Seed sown in autumn will give plants for spring-blooming, and sowings made from March to June will yield a display through the summer and autumn. If protected from frost the plant is perennial.

L. MONOGYNUM (New Zealand Flax).—A beautiful kind with large pure white blossoms blooming in summer. It grows about 1½ feet high in good light soil, and its neat and slender habit renders it particularly pleasing for the borders of the rock garden or for pot-culture. Increased by seed or division; it is hardy in the more temperate parts of England, but in the colder districts is said to require some protection. *L. candidissimum* is a finer and hardier variety. Both are natives of New Zealand.

L. NARBONENSE (Narbonne Flax).—A beautiful kind, bearing during summer many large light sky-blue flowers, with

violet veins, growing best on rich light soils, and is a fine plant for borders, or for the lower flanks of the rock garden, forming lovely blue masses 15 to 20 inches high. S. Europe.

Other similar blue-flowered kinds are *L. perenne, usitatissimum, alpinum, sibiricum, alpicola, collinum,* and *austriacum;* all are hardy European species, and make pretty border or rock garden plants. The white and rose varieties of *L. perenne* are pretty.

L. SALSOLOIDES (White Rock Flax).—Dwarf half-shrubby species, essentially a rock garden plant; its flowers, white with a purplish eye. In the rock garden, in a well-exposed sunny nook, the plant is hardy, and trails over stones, flowering abundantly. It produces seeds rarely, so that it must be increased by cuttings of the short shoots taken off about midsummer; these will strike freely, and make vigorous plants when potted off in the following spring. *L. s. nanum* is a rare dwarf form studded with large pinky-white flowers. An excellent rock garden plant. Mountains of Europe. *L. viscosum,* with pink flowers, is a closely allied plant not so pretty.

The Common Flax, which gives us the linen fibre, is a pretty annual plant worth a place for its beauty among annual flowers.

LIPPIA.—*L. nodiflora* is a dwarf perennial creeper bearing in summer heads of pretty pink blooms. It grows in any situation or soil, and is a capital plant for quickly covering bare spaces in the rock garden where choicer subjects will not thrive.

LIQUIDAMBAR (*Sweet Gum*). — A very beautiful summer-leafing maple-like tree from Florida westward to the prairie states, often reaching 100 feet in height, the leaves turning an intense deep purplish red in autumn, fine in effect. This tree, thriving in wet and marshy places, is more at home in Great Britain than some of the American trees. It would probably attain a greater stature in river-side soil in a warmer country than ours, the best trees in its native country growing in rich moist soils. It makes a beautiful lawn and home-ground tree, but should be planted in rather deep moist soil. The leaves are fragrant in spring. It would be better grown as a group than as single plants. Seed.

L. FORMASANA is a tree highly spoken of and one which promises well for this country. The leaves are maple-like and often 4½ inches across.

In its own country it makes a Tree up to 80 ft. in height.

LIRIODENDRON (*Tulip Tree*).—*L. tulipiferum* is one of the noblest of flowering trees. It is only when the tree has reached maturity that it bears its beautiful Tulip-like flowers of pale green and yellow. Young Tulip trees should be planted on lawns in free or ordinary soils, as the flowers are very pretty in a cut state for the house, and the tree a beautiful one at all times. N. America.

LITHOSPERMUM (*Gromwell*). — A few of these Borage-worts are well worth growing. One of the finest is *L. prostratum,* a spreading little evergreen having flowers of a lovely blue, with faint reddish-violet stripes, in great profusion when the plant is well grown. It is hardy, and valuable as a rock plant from its prostrate habit and the fine blue of its flowers. Its

Lithospermum prostratum.

shoots will fall down the sunny face of a rocky nook, to spread into flat tufts on level parts of the rock garden. On dry sandy soils it forms an excellent border plant. In such soils, it is suited for the margins of beds of choice and dwarf shrubs. It is sometimes grown as *L. fruticosum,* but the true *L. fruticosum* is a little bush, and not prostrate. Easily propagated by cuttings. S. Europe.

L. PETRÆUM (Rock Gromwell).—A neat, dwarf shrub, something like a small Lavender bush, with small greyish leaves. Late in May or early in June all the little grey shoots bear small oblong purplish heads, and early in July the plant is in full blossom, the full-blown flowers being a beautiful violet-blue. The best position for it is in the rock garden somewhere near or on a level with the eye, on a well-drained, deep, rather dry sandy soil. Native of dry rocky places in Dalmatia and S. Europe. Cuttings or seeds.

L. purpureo-cæruleum (Purple Gromwell), a British plant, is a good addition, and its

brilliant blue flowers are most effective. *L. Gastoni*, *L. canescens*, *L. graminifolium*, *L. tinctorium*, and *L. rosmarinifolium* are very pretty plants, but coming from sunnier lands than ours are not really at home in our climate, and for the most part they can only be grown well on dry ledges of the rock garden in the most favourable districts.

LLOYDIA (*Mountain Spider-wort*).—*L. serotina* is a small bulbous liliaceous plant, suitable for the cool parts of the rock garden, and not of the showy order of beauty. It is one of the first flowers the early visitor to the Alps sees by the pathway over the high mountains.

LOASA.—Curious prickly annuals with singular flowers and stinging foliage. *L. hispida* is pretty, growing about 18 inches high, with deeply-cut foliage and short stinging hairs, the flowers 1 inch across, of a bright lemon-yellow, the centre prettily marked with green and white. It blossoms several weeks in succession during August and September. The other kinds in cultivation are the beautiful *L. vulcanica*, with its pure white flowers and red and white striped centres; *L. lateritia*, a twining species, with orange-red flowers; and *L. triloba*. All are natives of the cool regions of Peru and Brazil, and can be grown in the open air during summer. Treated as half-hardy annuals, and grown in a light fertile soil, they are interesting for open borders; the climbing species, such as *lateritia*, require branches to twine among. Seed.

LOBELIA. — Distinct and much varied perennials and annuals, some of high value for the flower garden. The perennial Lobelias, like *L. splendens*, are amongst the finest of autumn flowers. It is often best to winter them in a cool house and plant out in April. Although impatient of moisture during the resting period, they revel in it when in active growth, and where beds can be prepared in the vicinity of lakes or streams, better results will be obtained than in the mixed border. In propagating in early spring they can be divided into single crowns, and these potted on soon form sturdy plants ready to plant out on the approach of warm weather. They thrive best in a free leafy soil, and like plenty of sun, unless in the case of *L. cardinalis*, which I find thrives best in a partially-shaded bed. In some districts with light soils, and often near the sea, these plants do not require protection in winter. Both types may be raised freely from seed sown in gentle heat in February. There are many good varieties.

L. CARDINALIS (Cardinal Flower).—The true plant is one of the rarest and one of the prettiest of the genus. The brilliant effect produced in autumn by tufts of this species well repays any trouble it may give, for though by no means fastidious, the difficulty of growing it well in small gardens in the absence of shade and moisture is great. It is a bog-loving plant, being found in wet ground in N. America. It is, however, a true perennial, although maybe a short-lived one, and should be frequently raised from seed to make sure of keeping up the stock. This species is not so liable to disease as *L. splendens* and

The Scarlet Lobelia.

its varieties. The flowers are of the most vivid scarlet, and as they last a long time in bloom it well deserves care. It is hardier than *L. fulgens*, living through the winter in open beds and with little or no protection. Its leaves are shorter and greener than those of *L. fulgens;* the flowers, too, are smaller, but more numerous on the spikes.

L. FULGENS.—Is a brilliant and precious plant for the flower garden. Its leaves are long and narrow, and the flower-stalks taller and thicker than those of *L. cardinalis*, the flowers larger with broad over-lapping petals. The best known, and a handsome form of this, bears the name Queen Victoria. Its leaves are a deep purple colour, and the flowers a brilliant crimson-red. Firefly is the handsomest variety in this section, and was raised in Ireland. In good rich soil it attains to a height of 5 feet, whilst in colour the flowers are intensely vivid and rich. One of its merits is that it bears lateral flower-spikes around the central one much more freely than Queen Victoria, and these keep up a succession of bloom after the leading spike is past its best. Huntsman is another variety, brighter in colour than Firefly. Sir R. Napier, Rob Roy, and other varieties have been obtained from it. These vary in colour and habit very much, and as they are all robust, free-flowering plants, they are valuable in the autumn garden, giving brilliant effects until cut down by frost. The variety *ignea* has broader leaves and larger flowers.

This Lobelia suffers from a kind of rust, which fastens on the main fleshy roots when the plants are at rest, and rots them. This disease, working as it does at a time when growth is at a standstill, is not perceived in time to be checked, and makes its appearance in November, especially if the weather be wet. The plants should then be carefully taken up, reserving as much of the roots as possible, the soil being shaken off, and the roots well washed. The disease will be readily discovered by its rusty-looking spots, which must be cut out with a sharp knife, as the least portion will suffice to destroy the plant. After the plants are examined they may be potted or laid in a frame in some free sandy soil, and very fine specimens may be obtained by potting and plunging in a slight bottom-heat, keeping the top quite cool. In about a fortnight they will have made fresh fibre, and all danger will be past. They may then be kept in a cold frame during the winter, and planted out where desired in spring. The bottom-heat, however, is not indispensable; for they will succeed if carefully and sparingly watered after potting. All the plants of the *fulgens* group show their great beauty only on peaty or deep leafy and moist soils; often on loamy soils the growth is short and weak, the flowers poor, and under such conditions they may not be worth growing.

L. TUPA.—This is also known as *Tupa Fuelli*, and although a native of Chili, will be found to stand well in the south protected with sifted ashes, gravel, or other loose material in autumn. It is best, however, against a south wall, and when doing well often attains a height of 6 to 8 feet; the flowers large, brick-red, in large racemes, from July to September. In deep free soils near the sea, *L. Tupa* is a very handsome plant.

L. cavanillesii is of more graceful habit and hardier. We have seen patches of it at the base of rockwork, where it has stood unprotected for years, several feet across. The flowers are scarlet, long and tubular. Very showy August-flowering subject.

These tall Lobelias have a great attraction for me, and my experience of their ways may be of use to others. The Cardinal Lobelia is a hardy one, grows in the colder parts of N. America, on the fringe of lakes, and hardy in England. Brilliant, but not so fine as the more southern species *fulgens*. This I never like to be without, and find it not so easy to succeed with, though it lives through the winter in some sea-coast gardens. With me it is very difficult to keep over winter owing to the attacks of minute insect enemies. It is best in a peaty soil, plenty of water, and be carefully housed in autumn. In the west, with a greater rainfall, it grows stronger, sometimes over 5 feet high.

LOISELEURIA.—A wiry little shrub, *L. procumbens*, growing close to the ground, the plants forming tufts with small reddish flowers in spring. Its bloom is never attractive, and the plants transferred to gardens from the mountains usually perish, because perhaps the strongest specimens are selected instead of the younger ones. Its true home is the rock garden, and it prefers deep sandy peat. Heath order. Arctic and alpine Europe and Asia and higher Scottish mountains. Syn. *Azalea procumbens*.

LOMARIA.—Ferns, for the most part tropical, and requiring artificial heat; but in mild parts two or three thrive in the open air. *L. alpina*, a native of New Zealand, is dwarf, and produces from a creeping rhizome abundance of dark shining green fronds, 4 to 6 inches in height. It is specially adapted for the rock garden, should receive similar treatment to the

Ceterach (to which it forms a charming companion), and should, like it, be associated with Sedums and alpine plants. *L. crenulata* is similar, but not quite so hardy, though it succeeds in the mildest localities, as will also the Chili *L. chilensis*, a tree Fern of noble growth. These Ferns should be placed in the snuggest quarters of the hardy fernery, and care should be taken to protect them during severe cold. A fine bold kind is *L. magellanica*.

L. PROCERA.—A handsome large-growing Fern, thriving in the open air in the milder parts of Britain, particularly where the atmosphere is moist, as in Ireland and the south-west of England. It is a variable plant, spread over nearly half the world, the hardiest forms coming from Chili, New Zealand, and Tasmania. *L. p. chilensis*, one of the best, grows in comparatively cold regions of S. America, its stout leathery fronds once cut to the midrib being 4 or 5 feet long, and produced on stout red stalks from a prostrate fleshy stem or trunk. This trunk never rises, but creeps along the ground, its underground rhizomes freely giving off young plants in rich open soils. *L. p. Gilliesii*, another fine evergreen form from Chili, differs from that just described in its short erect trunk, and shorter fronds on pale green stalks.

LOMATIA.—Evergreen shrubs of slow growth, with finely-cut fern-like leaves so tough in texture that they outlast almost any other foliage. Several kinds are hardy in the milder parts of Britain, and deserve a more extensive trial. *L. ferruginea*, from Chili, has grown well for many years in the north of Ireland, at Castlewellan, making a bush 9 feet high and 27 feet in circumference, flowering freely, and never yet injured during the winter, though grown in the open during the past twenty years. *L. longifolia*, an Australian species, planted out in a bed of Rhododendrons at Forest Hill, near London, grew luxuriantly in the open air, flowering and bearing seed, and only twice cut to the ground by frost during twenty years. *L. elegantissima*, of New Zealand, has also proved fairly hardy, and with other kinds, such as *L. filicifolia* and *L. propinqua*, might be given a trial with the choicer evergreen shrubs in the sheltered shore gardens of Devon and Cornwall. The rather difficult increase of these shrubs has probably been against them.

LONAS INODORA.—Interesting—but rarely seen—is this little plant of the North African Coast which grows about 1 foot in height, each slender branching stem being terminated with a dense cluster of firm yellow flowers from July to October. It may almost be classified with the "everlastings" as the flowers possess the same keeping qualities peculiar to that family. Seeds scattered thinly where they are to bloom during the last week in April and thinned to 6 inches apart will commence to flower early in July.

LONICERA (*Honeysuckle*).—Graceful and fragrant woody climbers and bushes precious for gardens. The Twining Honeysuckles form a distinct group of species with whorled clusters of flowers terminating the young shoots. The erect-growing or Bush Honeysuckles have the flowers axillary and generally in pairs. Among the twining species there are a few that have axillary flowers, and of these *Lonicera japonica* is a typical example, while the commonest example of the Bush Honeysuckles is the Tartarian Honeysuckle.

They all flourish best in a light rich soil in a fully-exposed sunny position. It is a mistake to plant Honeysuckles at the base of shady trees and expect them to climb up and produce crops of flowers as they do when in the open. Honeysuckles naturally delight to twine upon other plants, but in shade they do not flower. One often sees a thicket overrun with common Honeysuckle, but until the trees have been cut the Honeysuckle does not flower so well. It loves to ramble over a hedge, as we see it by the wayside, and in the garden one can make various hedge combinations with it and some other hedge plants, such as Sweet Brier and Holly. To cultivate Honeysuckles to perfection, they should not be planted near any other living shrub, but should be supported by a dead tree trunk or trellis, as then the Honeysuckle gets all the food from the soil. This is why one sees plants of Honeysuckle on a wire trellis bearing much finer blooms than is the case when growing over trees or hedges. A good plan is to plant some in good soil against wooden posts at distances of 12 feet apart, and when they have reached the top of the posts to connect them by a festooning chain from post to post, as Roses and Clematises are often done.

Some attention is required in prun-

ing, especially the European and American deciduous species. The old stems should be cut away so as to encourage new ones, otherwise if allowed to go unpruned the plants die out. The Japanese Honeysuckles are more vigorous, and only require pruning to keep them in check.

yellowish berries. It is a robust twiner, and grows wild in chalky districts in hedges and woods.

L. CILIOSA (Western Trumpet Honeysuckle).—A twining species of the *L. sempervirens* group differing in having leaves hairy at the margins. Flowers 1½ inches long, very freely produced, and in their self-coloured refined orange tone

Loniccra Periclymenum (Honeysuckle).

L. CAPRIFOLIUM (Goat Honeysuckle).—A common plant, but not a true native, though it occurs occasionally in a naturalised state. The flowers, borne in clusters, have long tubes, yellowish and blush tinted, and very fragrant, coming in May and June, succeeded in autumn by very effective and distinct from all else. Flowers in early summer, the scarlet fruits ripening in September. N. W. America.

L. CONFUSA.—De Candolle's Honeysuckle is the beautiful Honeysuckle that is grown under the name of *L. Halleana*. A slender plant with long twining branches,

the leaves are ovate, and not pinnatifid as in *L. japonica*, deep green, with not such a ruddy tinge as in *L. japonica*. The flowers are in pairs from the axils of the leaves on the tips of the young shoots, pure white when first expanded, changing to yellow, and this is the character that makes the plant so beautiful apart from its fragrance and free flowering. It flowers throughout the summer, and its lithe, slender stems will soon reach the top of a wall or tree stump.

L. FLAVA.—A moderate climber, with broad ovate leaves, pale green beneath, and terminal clusters of flowers, bright rich yellow fading to a deeper shade, and delightfully fragrant. It is best when planted against a sunny wall in this country. N. America.

L. FRAGRANTISSIMA (The Winter Honeysuckle).—Among the earliest of all hardy shrubs whose flowers greet the new year are this species and its close ally, *L. Standishi*. Neither of them can be called showy, yet they are both well worth growing, because their flowers, although small, are abundant, and have besides a fine fragrance. These are only good in warm southern valleys or warm walls, but never so valuable as the summer-flowering kinds.

L. TRAGOPHYLLA (Chinese Honeysuckle).—A beautiful Honeysuckle, large yellow flowers, vigorous and hardy. Best in a half-shady position and in good moist loam.

L. JAPONICA (Japan Honeysuckle).—This is as hardy as the common Honeysuckle, and retains its foliage during winter. It may be distinguished from the other two Japanese species by its slender growth, deep green shining leaves, which have a marked tendency to vary from the normal ovate form to a pinnatifid or Oak-leaved form. The flowers are in pairs on the tips of the young shoots, tubular, slender, white tinged with red, and fragrant, from midsummer till the beginning of autumn.

L. PERICLYMENUM (Honeysuckle: Woodbine).—A native of the middle of Europe and northwards, and is a true native in England, where it is generally seen in hedgerows and thickets. Numerous varieties of this species have sprung up either wild or under cultivation. Some differ in regard to colour of flowers, others in time of flowering, and these are the most important. The wild form flowers about midsummer, according to the season—the variety known as the Late Dutch Honeysuckle flowers into autumn. Another variety, *belgica*, is known as the Dutch Honeysuckle, as distinguished from the late Dutch, and it is a stronger growing plant than the type. Its branches are purplish, and its flowers are reddish outside, yellowish within.

L. SEMPERVIRENS (Trumpet Honeysuckle).—The most beautiful Honeysuckle that has come to us from America for the open garden, where it flourishes well in the southern counties, and none of the Honeysuckles have such brilliant flowers. From the beginning of summer till the end it bears loose clusters of long flowers, scarlet outside. It is best against a warm wall in the cooler parts of the country.

LOTUS (*Bird's-foot Trefoil*).—Trailing or half-shrubby herbs, the one best worth growing being the native *L. corniculatus*, which occurs in almost every meadow or pasture, forming tufts of yellow flowers with the upper part often red on the outside. Though so common, it is worthy of a place in the garden. The double-flowered variety is the best, as the flowers continue longer in perfection. *L. creticus*, *maroccanus*, *sericeus*, are found in botanical gardens, but are not so pretty. *L. Jacobæus*, a tender species with almost black flowers, succeeds in the open air in summer, and is all the better for planting out. The Lotus is best planted so that its shoots may fall in long and dense tufts over the face of stones.

LUNARIA (*Honesty*).—When well grown this old-fashioned plant, *L. biennis*, is beautiful, not only on account of its fragrant purple blossoms, but from the silvery flat seed-pods that succeed them. In borders, on the margins of shrubberies, and in half-shady situations, it is effective in April and May, in any ordinary light garden soil. Honesty is charming in a semi-wild state on chalky or dry banks and in open bushy places. Seed should be sown every spring, and the plants should be thinned out during growth in order to make good ones for the next year. *L. rediviva* is a perennial similar to the Honesty, but with larger and more showy flowers. It is 2 or 3 feet high, and flowers in early summer, doing best in half-shady borders of good light soil. Division or seed. Mountain woods of Europe.

LUPINUS (*Lupine*).—Beautiful annuals, biennials, and perennials, chiefly from N. America. The species in cultivation are few, though the names occurring in catalogues are numerous. The best of the perennials are:—

L. ARBOREUS (Tree Lupine).—A precious plant for dry soils and rough rocky banks or slopes, the scent of a single bush reminding one of a field of Beans. Its purplish variety is good, though not nearly so valuable, and there are some inferior

yellowish varieties. The best variety is the yellow, because while there are good blue perennial Lupines, there is no other good yellow. It forms a roundish bush, 5 to 7 feet high, and is easily raised from seed; handsome forms are increased from cuttings.

Lupinus polyphyllus.

L. NOOTKATENSIS.—A dwarfer species, and has large spikes of blue and white blossoms. It flowers earlier than *L. polyphyllus*, and continues in bloom for a long time, but it is not a good perennial, and requires to be frequently raised from seeds. N.W. America.

L. POLYPHYLLUS.—One of the handsomest hardy plants, 3 to 6 feet high, with tall flower-spikes crowded with blossoms, varying from blue and purple to reddish-purple and white; in summer thriving in open positions in any kind of garden soil. It is a fine plant for naturalising, as it holds its own against stout weeds. The principal varieties are *argenteus, flexuosus, laxiflorus, Lachmanni, rivularis* and *grandiflorus*. N. America. Seeds.

Annual Lupines are among the best of hardy annuals, varied in colour, and of the simplest culture. As they grow quickly, they need not be sown till about the middle of April. They thrive in any common soil. *L. subcarnosus* is a beautiful ultramarine blue, and should always be grown. *L. hybridus atrococcineus* is the finest of all, having long and graceful spikes of flowers of a bright crimson-scarlet, with white tips. Other excellent sorts are *mutabilis, Cruikshanki, Menzïesi, luteus, superbus, pubescens, Hartwegi*, and the varieties of *Dunnetti*. Many other sorts are so much alike that they are not worth separating. The smaller annual Lupines are very pretty, and could be charmingly used to precede late-blooming and taller plants.

LYCHNIS (*Campion*).—Plants of the Pink family, among which are a few well suited for the garden. All are perennial.

L. ALPINA.—A diminutive form of *L. Viscaria*, the tufts being seldom more than a few inches high and not clammy. In cultivation it is pretty and interesting, if not brilliant, and may be grown without difficulty in the rock garden, or in rather moist, sandy soil. A British plant.

L. CHALCEDONICA.—An old border plant, 1½ to 4 feet high, with large dense heads of brilliant scarlet flowers, and of easy culture in any good ordinary soil. There is a handsome double scarlet variety. The double white and single white kinds are less desirable. Division.

L. DIURNA.—The double deep purple-red sort of this common native plant is very desirable, being very hardy and very showy, and never failing in any soil to produce a fine crop of bloom in early summer.

There are two double-red varieties of *L. Flos-cuculi* (Ragged Robin), pretty border plants. Division.

L. GRANDIFLORA.—A handsome plant, typical of the numerous varieties now in cultivation under the names of *Bungeana*, and others which grow 1 to 2 feet high, and bear flowers in a cluster of a dozen or so, each flower being 1 to 2 inches across, fringed at the edges, and varying from

vivid scarlet to deep crimson, and from pink to white. Exposed to strong sun the colour of the flowers soon fades, but in a partially-shaded place the flowers retain their true colour for a considerable time. They are good border flowers, thriving in warm sheltered situations in light soil, for though quite hardy they are apt to suffer from moisture and cold. Plant in deep sandy well-drained soil in a sunny position. All the varieties may be raised by seeds. *L. fulgens*, a Siberian plant, is similar to the forms of *L. grandiflora*.

Double Ragged Robin.

L. Haageana.—Reputed a hybrid between *L. fulgens* and *L. coronata* or *grandiflora*, it is one of the best of this valuable group of border plants, in itself extremely variable, affording nearly every shade of colour, from the brightest scarlet to white. The colours seem fixed, and we have now good distinct scarlet, crimson, pink, and salmon shades, all worthy of attention. The great enemy of this and other tuberous rooted sorts, *e.g.*, *grandiflora* and others, is the slug in winter, the pest destroying the crowns and roots. They should be raised periodically from seeds, which are freely produced, the seedlings flowering in the second year. They dislike heavy and cold retentive soils, and should be given rich light sandy soil and a not too sunny aspect. *L. Arkwrighti*, boomed as a novelty, of late appears to be but a vigorous counterpart of this old and well-tried plant.

L. Lagascæ.—A lovely dwarf alpine plant, with many bright rose-coloured flowers, about ¾ inch across. It is suited for adorning fissures on the exposed faces of rocks associated with the smallest alpine plants. It is easily cultivated in the rock garden in any free, sandy, or gritty soil. An exposed position should be preferred, as the plant is very free in growth. The flowers appear in early summer, and if not weakened by shade, or by being placed in frames, are in fine condition when the plant is about 3 inches high. Seed.

L. Viscaria (German Catchfly).—A British plant, with long grass-like leaves, bearing in June many showy panicles of rosy-red flowers, on stems 10 to nearly 18 inches high. The bright-coloured variety called *splendens* is the most worthy of cultivation. *L. V. alba*, a charming white variety, is worthy of a place in gardens, as also is the double variety, which has rocket-like blooms. They are excellent for the rougher parts of the rock garden, and as border plants on dry soils. The double variety is used with good effect as an edging plant about Paris. Easily propagated by seed or division; or, preferably, by cuttings secured with a heel in early summer, and which when rooted make excellent plants.

LYCIUM (*Box Thorn*).—Rambling shrubs, the best known being *L. chinense*, a common climber on cottage walls. Though not a showy flowering shrub, few others are so rapid in growth, so graceful, and so indifferent to the nature of the soil. It is also suited for covering porches, pergolas, and arbours, and in late summer and autumn, when every long drooping branch is thickly hung with small orange-scarlet berries, it is pretty. The flowers are small, purple and white, and the unripe berries are of the same tints. The commonest kinds are—*L. chinense*, from China; *L. barbarum*, from N. Asia; *L. afrum*, from N. Africa; *L. Trewianum*, and *L. pallidum*, from Colorado. They are of rapid growth, and therefore suitable for covering high walls, though all are deciduous.

LYCOPODIUM (*Ground Pine*).—*L. dendroideum* is a very distinct Club Moss, worth a place in the rock garden, its little stems, 6 to 9 inches high, much branched, and clothed with small, bright, shining green leaves. It flourishes best in a deep bed of moist peat in a low part of the rock garden, where its distinct habit is attractive at all seasons. Difficult to increase, it is rare in this country. N. America, in moist thin woods.

LYGODIUM (*Climbing Fern*).—*L. palmatum* is an elegant N. American twining Fern, hardy in a deep, peaty,

moist soil if in a sheltered and partially shady position. It is remarkable that so charming a plant is not yet in cultivation. I have so far failed with it, though I have seen it among wild shrubs in New Jersey.

LYSIMACHIA (*Loosestrife*).—Plants of the Primrose family of much diversity of habit. The most familiar example is the common creeping Jenny (*L. Nummularia*), than which there is no hardy flower more suitable for any position where long-drooping, flower-laden shoots are desired, whether on points of the rock garden, or on steep banks, growing in any soil. In moist soil the shoots attain a length of nearly 3 feet, flowering throughout their extent; it is easily increased by division, and flowers in early summer and often throughout the season. There is a yellow-leaved variety (*L. N. aurea*), which retains its colour well, can be readily increased, is useful for rock gardens or borders, and merits its name. The other kinds are tall and erect. *L. vulgaris, thyrsiflora, lanceolata, ciliata, verticillata, punctata,* and *davurica* are all 2 to 3 feet high, have spikes of yellow flowers, and, delighting in wet places, are suitable for the sides of ponds, lakes, streams, and similar spots. Indeed, they grow almost anywhere, but in a border they must have a place to themselves, as by their spreading they soon destroy weaker subjects. *L. clethroides*, a Japanese species, is a graceful plant, 2 to 3 feet high, with long nodding dense spikes of white blossoms, and the leaves in autumn of brilliant hues. *L. Ephemerum* is a similar plant, from S. Europe, but is scarcely so fine. There are some beautiful species, such as *L. atro-purpurea* and *lupinoides*, which are rare.

LYTHRUM (*Purple Loosestrife*).—The common waterside *L. Salicaria* is the most familiar plant of this genus, and one of the showiest. It is well worthy of culture where it is not plentiful. The beauty of the ordinary wild kind is surpassed by the varieties originated in gardens, of which *superbum* and *roseum* are the finest. The colour of these is a much clearer rose than that of the wild kind, and the spikes are larger, particularly those of *superbum*, which, under good cultivation, are 5 or 6 feet high. These plants are well worth growing by lakes or in boggy ground, and are easily increased by cuttings, which soon make good flowering specimens. Isolated plants in good soil make well-shaped bushes, 3 or 4 feet high and as much through, and look better than when planted closely in rows.

L. virgatum, alatum, Græfferi, flexuosum, and *diffusum*, smaller plants, and not so showy, are not without beauty.

MACLURA (*Osage Orange*).—A tree of great use in its own country, and occasionally grown with us in the south and near the sea, but of slight value for its beauty, and as a fence not nearly as good as our native Whitethorn or some of the American Thorns.

MACROTIMIA (ARNEBIA) ECHIOIDES (*Prophet Flower*).—A handsome and distinct perennial herb, 1 foot to 18 inches high. *M. echioides* has flowers of a bright primrose-yellow, marked by five black spots on the corolla, which gradually fade and finally disappear. It is quite hardy and suited either to the border or rock garden. Quite happy in rich light loamy soils. It is a native of the Caucasus and N. Persia, and though long introduced is still among the rarest of hardy flowers.

MAGNOLIA (*Lily Tree*).—Most beautiful of flowering trees and shrubs, there are about twenty species of Magnolia known, and all but some half-dozen or so are in cultivation in this country. The headquarters of these trees are in China and Japan, a few are peculiar to the Himalayan region, and a few more to N. America. A little care in transplanting in spring, in sheltering with mats from dry winds or hot sun, and in syringing the wood to prevent shrivelling, until the plants are established, would do much to prove that the Magnolias can be planted with every prospect of success. Some ripen seed freely in this country, but if dried and kept like other seeds until the following season, all chance of germination will have passed. All have seeds which retain their vitality for but a short time.

M. ACUMINATA (Cucumber Tree).—Is a noble tree, deciduous, the leaves varying from 5 inches to 1 foot in length, and glaucous green, the flowers yellow-tinged, bell-shaped, and slightly fragrant. There are fine examples of this tree at Kew, in the gardens of Syon House, and Claremont.

In its native country it attains a height of from 60 to 90 feet, with a trunk from 2 to 4 feet in diameter. The yellow Cucumber Tree (*M. cordata*) is regarded by Professor C. S. Sargent as a variety of *M. acuminata*.

M. CAMPBELLI (Indian Magnolia).—One of the most gorgeous of Indian forest trees, has not fulfilled the expectations of those who took so much trouble in introducing the species to British gardens. In a wild state it attains a height of 150 feet, and the fragrant flowers, varying from deep rose to crimson, come before the leaves. Probably the finest specimen in the British Islands is the one at Lakelands, near Cork. In 1884 it flowered for the first time, and it has also flowered well at Fota.

M. CONSPICUA (Lily Tree).—In its typical form this has snowy-white flowers, which are borne in the greatest profusion in the latter part of April and beginning of May. Several hybrid forms between this species and *M. obovata* occur in gardens. *M. Soulangeana* has flowers similar in shape and size to those of *M. conspicua*, but they are deeply tinged with red; *M. Soulangeana nigra* has dark plum-coloured flowers. Both these bloom a week or ten days later than the type. Other seedling forms or slight varieties of the *Yulan* are *M. Alexandrina*, *M. cyathiformis*, *M. speciosa*, *M. spectabilis*, *M. superba*, *M. triumphans*, and *M. Yulan grandis*.

M. DELAVAYI (Delavay's Lily Tree).—A native of Yunnan, where it is plentiful in the mountains at an altitude of 5500 to 7000 feet above sea-level. On poor soil it forms a bush 8 feet or so high, but in rich soil it reaches a height of 30 feet. It has magnificent foliage, for the larger leaves are each from 10 to 13 inches long and up to 7 inches wide, with stout stalks 2 to 3 inches in length, and remarkable for their thick texture and rich colouring, the dark green with a silvery reverse, and the younger foliage a glaucous bloom. Like other Magnolias, it should only be planted in warm, well-drained ground.

M. FRASERI (Fraser's Magnolia).—Native of the southern United States, recognised by its green spathulate leaves, measuring about 8 inches to 1 foot in length, and about 3 or 4 inches across at the widest part, the flowers, 3 or 4 inches in diameter, are creamy-white in colour, and appear later than those of any other cultivated species.

M. VIRGINICA SYN-GLAUCA (Laurel Magnolia).—Of the eastern United States, is a delightful sub-evergreen shrub, with leathery leaves, bluish-green above and silvery below. The flowers are globular in shape, very fragrant, opening of a rich cream colour, and gradually acquiring a pale apricot tint with age. In a wild state this species occurs in swamps and attains a height of 20 feet. It is hardy and easily grown in Britain in moist soil.

M. GRANDIFLORA.—The great Laurel Magnolia of the southern United States is, in England, best treated as a wall plant; under these conditions it thrives well and flowers freely. Where the evergreen Magnolia does best is in the nooks between bay windows or irregular fronts of dwelling-houses, buttresses on extra high walls also affording a good shelter. The site should be well prepared by trenching peat and leaf soil freely into good garden soil, a space not less than 3 feet by 30 inches being prepared for each tree. The tops branch naturally, and all that need be done is to spread them out thinly, and to keep the growths secured to the walls or trellis. They ought not to be closely trained, but if the branches or shoots are left too long the strong winds may break them off. In the southern counties in warm soils it may be planted in the open ground.

M. HYPOLEUCA.—This is the wood used by the Japanese for lacquer, for sword sheaths, etc., and the charcoal made from it is used for polishing lac. In the southern part of Yesso it is abundant in the forests, and forms fine trees, 60 feet or more in height, with a trunk diameter of 2 feet. The leaves are 1 foot or more long, and 6 or 7 inches wide, dark green and smooth above, and clothed with white hairs beneath. The flowers are creamy-white in colour, deliciously fragrant, and when fully expanded measure 6 or 7 inches across, the brilliant scarlet filaments forming a striking contrast to the petals.

M. KOBUS.—Is hardy in the south of England. The leaves are 6 or 7 inches long by about half as much in width, the flowers 4 to 5 inches in diameter, creamy-white. Professor Sargent, who found the species growing in the forests of Hokkaido, in Japan, describes it as a tree 70 to 80 feet high, with a tall straight trunk 2 feet in diameter. He says the flowers appear before the leaves, about the middle of May. Japan.

M. MACROPHYLLA.—This, though somewhat tender in the young plants, is worth growing simply for its beautiful leaves, which are green above and clothed with white hairs beneath, and attain a length of upwards of 3 feet. The open bell-shaped fragrant flowers are white with a purple blotch at the base of the inner petals, and measure 8 or 10 inches across. It is a lovely flowering tree on warm soils in the southern counties of England, as may be seen at Claremont.

M. OBOVATA.—Dwarf-growing bush,

hardy in the south of England, and bears freely its purple, sweet-scented flowers. This species has a number of synonyms, amongst which the following are the most frequently met with in books and nursery catalogues: *M. discolor, M. denudata, M. liliflora, M. purpurea, Talauma Sieboldi.* China.

M. SALICIFOLIA (Willow-leaved M.).—A native of Japan, where it forms a small tree 20 feet high; in this country specimens 10 or 12 feet high already exist. Its graceful habit, slender branchlets, and narrow, Willow-like, deciduous leaves make it a desirable shrub. The glistening white flowers, made up of six narrow petals, when fully expanded are each nearly 4 inches across. It gives excellent results in light, well-drained, loamy soil, with which a little peat has been mixed.

and deep red filaments, which add materially to the beauty of the blossoms.

NEW MAGNOLIAS.

Four new species and one new variety have recently been added from China, and particulars of these are given in the last issue (No. 4, 1920) of the *Kew Bulletin*. These are:—

M. DAWSONIANA. — Discovered by Wilson in 1908 in Western Szechuen at about 7000 feet. It forms a tree from 25 feet to 40 feet high, with firm leathery shining green leaves from 3 inches to 6 inches long and about half as much wide.

M. NICHOLSONIANA. — Another of Wilson's discoveries, grows in Western Szechuen at from 7500 feet to 9000 feet.

Magnolia stellata.

M. STELLATA.—An excellent coloured plate of this very beautiful Japanese shrub was published in *The Garden* in June 1878, under the name of *M. Halleana.* This species is the earliest of the Magnolias to flower, and it should be extensively grown for the beauty of its starry white flowers. A variety with blush-coloured flowers was sent from Japan by Maries.

M. TRIPETALA, a native of the southern United States, has large slightly-scented white flowers, from 5 to 8 inches across, and obovate-lanceolate leaves, from 1 to 3 feet in length. In a wild state the tree rarely exceeds 40 feet in height.

M. WATSONI.—A coloured plate of this beautiful Japanese species was published in *The Garden* in December 1883, under the name of *M. parviflora;* at that time it had not flowered in British gardens. It is hardy, has large creamy-white fragrant flowers with petals of great substance It is deciduous, from 12 feet to 20 feet high, the leaves 3 inches to 5 inches long, smooth, and dull green above, slightly glaucous and hairy beneath. The flowers, produced in June, are cup-shaped, 3 inches to 4 inches wide, fragrant, white with red stamens.

M. SARGENTIANA.—According to Wilson this is one of the most magnificent of all Magnolias. He saw trees of it in Western Szechuen over 50 feet high, and one near Wa-shan measured over 80 feet by 10 feet in girth. It has deciduous leaves 4 inches to 7 inches long, smooth above, hairy beneath, and the flowers are rosy-red to rosy-pink and about 8 inches across.

M. WILSONI has a considerable resemblance to *M. parviflora* and *M. Watsoni.* It was found by Wilson at from 7000 feet to 8500 feet in Western Szechuen, forming a shrub up to 10 feet high or occasionally a small tree twice that height; leaves

3 inches to 6 inches long, glabrous green above, velvety beneath; flowers cup-shaped, 3 inches in diameter, fragrant, white with a ring-like cluster of red stamens. This species flowered at Kew in June last year, where it is evidently hardy.

MAIANTHEMUM (*Twin-leaved Lily-of-the-Valley*).—A plant allied to the Lily-of-the-Valley, *M. bifolium* is a native of our own country. Its habit and relationship make it interesting, and it is easily grown in shady or half-shady spots, and under or near Hollies or other bushes. It is not fitted for the border, and is more suitable for the rock garden.

MALCOLMIA (*Virginian Stock*).—The old *M. maritima* is a dwarf hardy annual, and grows in any soil. The Virginian Stock, like many other annuals, does not show its full beauty from spring-sown seedlings, and where it sows itself in the gravel it is often welcome. Being easily raised, it is a good surfacing plant in the spring or early summer garden, bolder flowers standing up from its sheets of bloom, and in masses it is effective. S. Europe.

MALOPE.—*M. grandiflora* is one of the most showy of hardy annuals, and effective where a bold, crimson flower is desired. It is 18 to 24 inches high, and the better the soil the finer will be its bloom. There is a white variety, *M. g. alba*. The variety *M. g. rosea*, white flushed with rose, is pretty and distinct. *M. trifida* is smaller in every part, but showy. These bold annuals are rarely used with good effect. If from any cause the beds or borders get worn out, it is worth while to try the effect of a crop of the best annuals. The Malopes, being vigorous plants, are, as a rule, best in groups. S. Europe.

MALVA (*Mallow*).—Stout and sometimes showy perennial and half-shrubby plants, of which there are few pretty garden plants, the majority being coarse and weedy. One of the best is the white variety of the native Musk Mallow (*M. moschata*). It is a branching bush, with stems about 2 feet high, and many flowers 1 to 1½ inches in diameter. *M. campanulata* is a beautiful dwarf plant, but rare and not hardy except in very mild districts. It is dwarf and spreading, and bears numerous lilac bell-shaped flowers. *M. Alcea, Moreni* and *mauritanica* are worth growing in a full collection, and so is the annual *M. crispa*, 3 to 6 feet high—an erect pyramidal bush of broad leaves, with a crimped margin, pretty in groups or borders.

MARGYRICARPUS (*Pearl Berry*).—Small wiry shrubs, natives of the mountains and cool parts of South America, the flowers not showy, but the berries pretty. One kind, *M. setosus*, is best suited for the rock garden in dry soil.

MARTYNIA.—*M. lutea* is a pretty Brazilian annual, about 1½ feet high, with large roundish leaves and handsome yellow flowers in clusters, useful for beds, groups, and borders. It requires a light, rich, cool soil, a warm place, and frequent watering in summer. *M. fragrans*, another species, has sweet-scented flowers, and, under similar conditions, thrives in the open air in summer. It is best in rich borders or among groups or beds of curious or distinct plants. Seed.

MATTHIOLA (*Stock*).—Annual or perennial herbs, sometimes inhabiting sea cliffs. From a few wild kinds have been obtained the numerous varieties of the garden Stocks, which have so long been among the best of our open-air flowers. The principal of these species are *M. incana, M. annua*, and *M. sinuata*. *M. incana* grows wild on cliffs in the Isle of Wight, and is the origin of the Biennial, or Brompton and Queen Stocks; *M. annua* has yielded the Ten-week Stocks, and *M. sinuata* the others. These three primary divisions — the Ten-week, Intermediate, and Biennials—require each different treatment, and Stocks are so easily grown, so fragrant and handsome, that they will ever deserve care in our gardens.

Ten-week Stocks, if sown in spring, will flower continuously during the summer and autumn. The finest strain is the large flowering Pyramidal Ten-week, vigorous plants, each branching freely, bearing a huge main spike of double flowers and numerous branching spikes in succession. A bed of these Stocks should be grown if cut flowers are in request during the summer. The seed may be sown at any time from the middle of March onward, but it is always well to get Stocks from seed early. The seed can be sown thinly in pans or shallow boxes, in a

gentle heat, and as soon as the plants can be handled without injury, they should be transplanted to other pans or boxes and grown on quickly, care being taken not to draw them so as to make them lanky. There are various places in most gardens where a bed or patches of Stocks might be grown with advantage, and, given good rich soil, they will amply reward the grower. The German growers have a formidable list of kinds, many of which are more curious than showy. There are, however, sufficient good colours among them, such as crimson, rose, purple, violet, and white, to yield distinct hues.

Intermediate Stocks may be sown either in July or August, to stand the winter and flower early in the spring, or in March, to flower in the following autumn. The strain is dwarf and bushy, and very free-blooming, and the varieties may be said to be confined to scarlet, purple, and white. There is a strain grown in Scotland under the name of the East Lothian Intermediate Stock, and much used there for beds and borders, the climate exactly suiting it for late summer blooming. It is sown in the usual way about the end of March, planted out at the end of May when 3 or 4 inches high, and blooms finely through August and September, and even later, as the numerous side shoots give spikes of flowers. Thus, by using the autumn-sown Intermediate Stocks for early blooming, the ordinary large flowering German Ten-week Stock for summer flowering, and the later East Lothian Intermediate Stock for late summer, Stocks can be had in flower for eight or nine months of the year without intermission.

Biennial Stocks comprise the Brompton and the Queen, and they should be sown in June and July to flower in the following spring or summer. They are closely allied, and are probably only varieties of the same kind; but the seed of the white Brompton is pale in colour, whilst that of the Queen is quite dark. Old growers of the Stock assert that while the under side of the leaf of the Queen Stock is rough and woolly, the leaf of the Brompton Stock is smooth on both sides. Of the Queen Stock there are three colours—purple, scarlet, and white; and of the Brompton Stock the same, with the addition of a selected crimson variety of great beauty, but somewhat difficult to perpetuate. Both types are really biennials. The seed should be sown at the end of July in beds, and the plants transplanted to the open ground in the autumn. The difficulty of wintering the Brompton Stocks deters many from attempting their cultivation, and many die, even in a mild winter. A well-drained subsoil with a porous surface soil suits them best, and shelter from hard frost and nipping winds is of great service. A second transplantation of the seedlings about December has been tried with success.

MAZUS.—*M. pumilio* is a distinct New Zealand plant, vigorous, and creeping underground so as rapidly to form dense tufts, rarely more than ½ inch high; the pale violet flowers are borne on very short stems in early summer, and the leaves lie flat on the soil. *M. pumilio* thrives in pots, cold frames, or the open air, and does best in firm, open, bare spots in the rock garden, in warm positions in free sandy soil. Though not showy, it is an interesting plant, easily increased by division. Figwort family.

MECONOPSIS (*Indian Poppy*).—Beautiful Poppyworts, the most familiar of which is the common Welsh Poppy (*M. cambrica*); the other kinds are natives of the Himalayas, hardy, but only of biennial duration. They may be easily raised from seed sown soon after ripening, preferably in a little warmth; and, indeed, a good stock of strong plants can be ensured only by annual sowings. The following is the most successful mode of cultivating them: A piece of ground is prepared by digging in good loam and well-rotted stable manure; a two-light frame is placed over it, and seedlings are put in about March. As soon as the plants are fairly established the sashes are removed (unless the weather is frosty), and throughout the summer the plants are well supplied with water. In the following April and May they will have become large plants, often 2 to 3 feet in diameter, and are then removed to where they are wanted to flower. This may be readily done without needlessly checking them, as they form so many fibrous roots that a good ball of soil usually adheres to them. They are thus grown on as quickly as possible, being treated like biennials. They should be planted out in a well-drained rock garden in good

soil, with plenty of water in summer, but they must be kept as dry as possible in the winter, as excessive moisture in cold weather soon kills them. Sandstone broken fine should be placed under the leaves, to prevent contact with the damp soil.

M. ACULEATA.—A singularly beautiful plant, with purple petals, like shot silk, which contrast charmingly with the numerous yellow stamens. The flowers are 2 inches across, on stems about 2 feet high.

M. CAMBRICA.—For the wild garden or wilderness the Welsh Poppy is one of the best plants. It is a cheerful plant in all seasons, and a coloniser, making its home of the wall, rock, and the ruin. In many places it grows freely at the bottom of walls, or even in gravel walks if allowed a chance.

M. GRANDIS.—A newly introduced kind from the mountains of Sikkim, and one of the few true perennials in the genus. It is a plant of tall habit, with uncut leaves and solitary purple flowers of beautiful glossy texture.

M. INTEGRIFOLIA.—A new kind, its pale yellow flowers being much admired. The plant grows a a height of 11,000 feet to 15,500 feet in the mountains of Thibet and S.W. China. where myriads of plants are to be seen bearing flowers which sometimes measure 10 inches across. It is a biennial, hardy, and with oval uncut leaves of pale green, about 1 foot long when fully grown, and more or less covered with soft, silky hairs. The stems vary in height, but the plants flowered in this country were from 12 to 18 inches high, flowering until the first keen frosts. It is a moisture-loving plant, thriving in peat or leafy soil in a half-shady place.

M. NEPALENSIS has flower-stems 3 to 5 feet high, which are not much branched, the nodding blossoms, borne freely, are 2 to 3½ inches across, and of a pale yellow.

M. PANICULATA.—A beautiful Himalayan plant with much-cut foliage and panicles of bright yellow flowers, which come true from the seed ripened sparingly in fine seasons.

M. PUNICEA.—A fine kind, growing at a great height in the mountains of Thibet. The leaves are entire, tapering at both ends, and covered with long coarse hairs of a shining yellow colour. The massive flowers are borne singly upon slender stems of 1½ to 2 feet, reaching at their best 6 inches wide, and composed of large drooping petals of carmine-red or reddish-purple.

M. QUINTUPLINERVIA.—A perennial kind from Manchuria, of dwarf growth as a rosette of long-stemmed uncut leaves, covered with reddish hairs and traversed by five prominent veins. The nodding flowers come during summer upon hairy stems of 6 to 12 inches, and are cup-shaped, 1½ inches wide, and pale violet or purple with a large cluster of golden stamens.

M. RACEMOSA.—A rare plant but lately introduced to this country. Its flowers range in colour from pale lilac to deep purple, and have given good seed in the past autumn. China.

Meconopsis Wallichi.

M. SIMPLICIFOLIA has a tuft of lance-shaped leaves, 3 to 5 inches long, slightly toothed, and covered with a short, dense, brownish pubescence. The unbranched flower-stalk is about 1 foot high, and bears at its apex a single violet-purple blossom, 2 to 3 inches in diameter.

M. SINUATA LOBATA.—This handsome Meconopsis was very fine in a Scottish garden I visited this year. It was raised in quantity from seeds, and a good group in a partially-shaded place was very effective. The plants were about 3 feet high and bore many flowers of a wonderfully burnished purple. It is one of the best of the many Meconopsis which have been recently introduced. Like most of the others, it evidently prefers a moist and partially-shaded place.—S. ARNOTT.

M. WALLICHI.—A very handsome plant, between 4 and 5 feet high. It forms an erect pyramid, the upper half of which is covered with pretty pale blue blossoms, drooping gracefully from slender branchlets. It is a most conspicuous plant in the rock garden, where it withstands the winter without the least injury. Well-grown specimens have leaves 12 to 15 inches long, and a great number of pale blue flowers, opening terminally. Separate flowers do not last long, but a few expand at a time, and it is fully a month before they are all expanded at the base, by which time the seeds of those which opened first are nearly ripe.

MELIANTHUS (*Cape Honey Flower*).—An effective half-hardy plant for the summer; *M. major* having finely-cut, large, glaucous leaves contrasting effectively with the garden vegetation, and being of the easiest cultivation, it has become a favourite in sub-tropical gardening. Plants raised from seed early in the season make good growth by planting-out time, and by midsummer attain a height of 3 to 4 feet. S. Africa.

MELIOSMA CUNEIFOLIA. — The genus *Meliosma* was probably represented by one species only in British gardens previous to Mr E. H. Wilson's plant-collecting journeys to China, that species being *M. myriantha*, which was introduced by Maries in 1879. There are now several species available, all of them handsome decorative bushes, both as regards foliage and flowers. *M. cuneifolia* is more like the older *M. myriantha* than the other new species, for it has somewhat similar simple leaves, which are up to 7 inches long and 3 inches wide, with prominent veins. The flowers are small and alternately creamy-white and white. They are borne in long terminal panicles, sometimes 9 inches long and 6 inches through, and are fragrant. In a wild state it forms a large tree, but in this country so far it is only a well-branched shrub which flowers freely every summer. The leaves have regular pinnate nerves, marginal teeth, and a dark green glossy surface; but they are smaller, the largest being about 8 inches long and 4 inches wide. The flowers are in effect like those of some of the Sumachs.

M. VEITCHIORUM.—Has noble pinnate leaves each 2 feet or more long, with five pairs of leaflets and a terminal odd one, the largest being 6 inches long and 3 inches wide; the rachis and principal nerves dark red, the other parts a rich green. It forms a fairly large tree, not unlike a Walnut, and the panicles of small white flowers are said to be 18 inches long and very decorative. The young shoots are stout with smooth bark, and the leaves, when they first develop, are dark crimson.

MELITTIS (*Bastard Balm*). — *M. Melissophyllum* is a distinct plant of the Salvia order, with one to three flowers about 1½ inches long in May. The handsome purple lip reminds one of some Orchids. *M. grandiflora* is a slight variety, differing in colour from the normal form. The plant is distinct, and merits a place by shady wood walks, as it naturally inhabits woods. Woody spots near a fernery or a rock garden suit it; it grows readily among shrubs, and in the mixed border. It is found in a few places in England, and widely over Europe and Asia. Seed or division.

MENISPERMUM (*Canadian Moonseed*).—*M. canadense* is a hardy climber of rapid growth, having slender, twining, large roundish leaves, in summer bearing long feathery clusters of yellowish flowers. It is useful for covering a wall quickly for summer effect or for arbours, trellises, and pergolas, and thrives in almost any soil in shade or sun.

MENTHA (*Requieni*). — A minute creeping plant with a strong odour of Peppermint, and trails about among the tiniest plants in the rock garden. It is the smallest flowering plant grown in gardens, and for chinks in paved pathways one of the most charming.

MENTZELIA.—Lovely Californian plants, mostly of biennial duration, and requiring more care than most half-hardy plants. The following is a selection of the prettiest kinds: *M.* (*Bartonia*) *aurea I.*—A showy golden-flowered hardy annual, 1 to 2 feet high. Should be sown in April in groups or patches where it is to remain in light soil and warm situations, the plants being thinned to about 1 foot apart.

As the seed is very small, care should be taken not to bury it too deep. When well grown it might be used as a bold group, relieved here and there by tall plants. Chili. *M. lævicaulis* is a good kind, with whitish stem, 1 to 3 feet high, both stems and leaves covered with short and stout bristles, the rich yellow flowers opening only in bright sunshine. *M. nuda* is 2 to 4 feet high, with flowers resembling the last. *M. oligosperma* is a perennial, 1 to 3 feet high, with bright yellow flowers 3 inches across, opening in sunshine. *M. ornata* is a biennial, 2 to 4 feet in height, with creamy-white fragrant flowers 2½ to 4 inches across. It belongs to the vespertine section, that is, to those in which the flowers expand towards evening. Syn. *Bartonia*.

MENYANTHES (*Buckbean*). — *M. trifoliata* is a beautiful and fragrant native of Britain, found in shallow streams or pools, in very wet marshy ground, and in bogs; its strong creeping, rooting stems often floating in deeper water. The flowers are borne on stout stalks, which vary in length with the depth of the water, and are beautifully fringed and suffused with pink.

MENZIESIA. — Dwarf shrubs resembling Heaths, and, like them, admirably suited for large rock gardens or wherever there is a moist peat soil. They are all of neat growth, and bear pretty flowers.

M. CŒRULEA.—A tiny alpine shrub, native of Scotch mountains and of northern European mountains. A pretty bush for the rock garden or for choice beds of dwarf plants, 4 to 6 inches high, with pinkish-lilac flowers, flowering rather late in summer and in autumn. Europe.

M. EMPETRIFORMIS.—A dwarf Heath-like bush, seldom more than 6 inches high, with clusters of rosy-purple bells in summer. Though not common in gardens, it is one of the brightest gems for the choice rock garden, and thrives in exposed positions in moist sandy peat soil, and should be associated with the dwarfest rock plants. N. America.

MERENDERA.—*M. bulbocodium* is very much like *Bulbocodium vernum*, but flowers in autumn, having large handsome blooms of a pale pinkish-lilac. Suitable for the rock garden and the bulb garden till plentiful enough for borders. Increased by separation of the new bulbs and by seed. S. Europe.

MERTENSIA.—Borage-worts, beautiful in form of foliage and stem, and in the graceful way in which they rise in panicles of blue.

M. ALPINA.—A dwarf kind. The leaves are bluish-green; the stem 6 to 10 inches high, bearing in early summer one to three drooping terminal clusters of light blue flowers.

M. DAHURICA.—Although very slender and liable to be broken by high winds, is hardy. It is 6 to 12 inches high, has erect branching stems, and bears in June panicles of handsome drooping azure-blue flowers. It is very pretty for the rock garden borders, and should be planted in a sheltered nook in a mixture of peat and loam. Division or seed.

M. MARITIMA (Oyster Plant).—Very little known in gardens, and though a seaside plant and usually found growing in sea-sand, it is amenable to garden culture. Given a light sandy soil of good depth, and a sunny position where its long and succulent flower-stems may spread themselves out, carrying a long succession of turquoise-blue flowers, it is a plant that we may expect to see year after year.

M. OBLONGIFOLIA. — Another dwarf species. The stems are 6 to 9 inches high, and they bear handsome clustered heads of brilliant blue flowers, and deep green fleshy leaves.

M. PRIMULOIDES. — A beautiful and choice species from the Himalayas, with

Mertensia virginica (Virginian Cowslip).

rich blue Forget-me-not like flowers. Quite happy in cool places in peat and loam. Height, 6 inches. Seeds and division.

M. SIBIRICA.—A plant of much beauty of colour and grace of habit, grows and flowers for a long period in ordinary soil. The small bell-shaped flowers are borne in

loose drooping clusters, gracefully terminating in arching stems. The colour varies from a delicate pale purple-blue to a rosy-pink in the young flowers. A hardy perennial growing best in a peaty bog. Division.

M. VIRGINICA (Virginian Cowslip).—The handsomest of the Mertensias, bearing in early spring drooping clusters of lovely purple-blue blossoms on stems 1 to 1½ feet high, the leaves large and of bluish-grey. In many gardens it never makes the slightest progress; but a sheltered, moist, peaty nook is the place for it. The finest plants are grown in moist, sandy peat, with shelter near. It is an old garden plant, and one which has never become common; in the southern country it is grown too dry.

MESEMBRYANTHEMUM (*Ice Plant*).—Dwarf or trailing succulent plants, of which there are several grown in the open air, though none are hardy. The Common Ice Plant (*M. crystallinum*) is grown for garnishing in most large gardens and is also used as a pot plant; but it is most effective when planted out in the rock garden or on an old wall. In a sunny situation it will grow in any good soil, and will grow from 3 to 4 feet in a season. On warm days has a refreshing look, and its flowers, unimportant compared with the stems and foliage, are bespangled with crystal. Seeds should be sown in heat in March, and the seedlings planted out 6 to 8 inches apart.

Lady Lennard of Kingsmear Court, S. Devon, writes:—

"We have five Mesembryanthemums which include the following:—*M. falciforme, floribundum, muricatum, edule, æquilaterale*. We have *falciforme* on a wall almost sea swept, and it is a magnificent sight in July. Some people thought the wall had been painted red when first they saw it."

MESPILUS (*Medlar*).—*M. germanica* is a beautiful small tree or bush with large and handsome flowers, and a wide-spreading head, and is beautiful in early summer when studded with great white flowers among its large pale green leaves. The only other species in gardens is *M. grandiflora*, also called *M. Smithi*. It is a good lawn tree. About the middle of May it is attractive with its large flowers.

MEUM (*Spignel*).—*M. athamanticum* is a graceful fine-leaved perennial, dwarf in habit, 6 to 12 inches high, free in ordinary soils, and hardy. In dry seasons it might wither too soon, but it is pretty for the rock garden or borders. A British mountain plant and aromatic. Division.

MICHAUXIA (*Michaux's Bellflower*).—*M. campanuloides* is a remarkable plant of the Bellflower family, 3 to 8 feet high, the flowers white tinged with purple, and arranged in a pyramidal candelabra-like head. Sometimes it flowers in the third or even in the fourth year, but is usually considered a biennial, and should be treated as a hardy one. Seedlings should be raised annually, so as to always have good flowering plants. It flourishes best in a deep loam. Its

Michauxia campanuloides.

stately form and tall stature are effective in the mixed border or in a nook in a bed of evergreen shrubs. Warm sheltered borders and borders on the south side of walls suit it best. Levant.

M. TCHIHATCHEFFII.—A remarkable species from Asia Minor, rare in cultivation and difficult to flower. It forms large spreading rosettes of leaves and produces pale blue flowers. It should be tried in a sunny, well-drained position in loam and lime rubble.

MILIUM (*Millet Grass*).—Grasses, some of them graceful. Our native *M. effusum* is worth cultivating for its feathery plumes. It is suitable for associating with flowers in summer, and grows in any soil, preferring moist places. There are one or two other kinds worth growing.

MIMULUS (*Monkey-flower*).—The cultivated species are valuable showy border flowers, and are for the most part natives of California. They love moisture, and are suitable for damp

places, such as bogs, moist borders, and the margins of streams and artificial water. The old *M. cardinalis* is showy when well grown, and is deserving of a place. There are several varieties of it. The common Musk, so hardy and enduring for many years, is now lost. *M. luteus* and its varieties, *cupreus*, *guttatus*, and others, are typical of the beautiful hybrids which are now in gardens, and which combine the dwarf habit and hardiness of *M. cupreus* with the large flowers, richly spotted and blotched, of the other parent, the old *M. variegatus*. These hybrids, which are known as *M. maculosus*, bear exposure to the sun better than the parents. These sorts should be grown, and a packet of seeds affords a wonderful variety. The seeds of the Mimulus should be merely sprinkled on the soil; if covered by it they may vegetate less quickly and abundantly. A little damp moss may, however, be laid over the surface, but should be removed as soon as the seeds have germinated.

MIRABILIS (*Marvel of Peru*). — Stout herbaceous plants, the most familiar of which is *M. Jalapa*, a dense, round bush covered with flowers, nearly 3 feet high, the flowers about 1 inch across, white, rose, lilac, yellow, crimson and purple—striped, mottled, and selfs. The plants may be treated as half-hardy annuals, raised from seed in a warm frame, potted on, and planted out in May. They are, however, perennial, and when the leaves are killed by frost the tapering black root must be lifted and stored in sand during the winter. The plants should be started in pots in spring and planted out as before; but after the second year the roots become unwieldy, and should be discarded. They require a warm soil and all the sunshine of our climate. The seeds ripen rapidly and readily; each flower produces one seed only, and as the seeds are large they can be gathered from the ground beneath the plants. *M. multiflora* is somewhat similar to *M. Jalapa*, but dwarfer, and the bright crimson-purple flowers are in large clusters, expanding in bright sunshine. It is a hardy perennial in light warm soils, and is a good border plant. *M. longiflora*, having long tubular flowers with carmine centres, is capital for the foot of a warm south wall. Mexico.

MITCHELLA (*Deer Berry*). — *M. repens* is a neat, trailing, small evergreen herb, 2 or 3 inches high, with white flowers in summer, succeeded by small bright red berries. It thrives in shady spots on the rock garden or the hardy fernery, in sandy peat. Division. N. America.

MITRARIA (*Mitre-flower*).—*M. coccinea* is a bright charming little shrub from Chili, hardy in mild districts, but generally requiring winter protection. It is a small evergreen shrub, bearing in summer numerous urn-shaped flowers about 1½ inches long and of a brilliant scarlet, thriving in a mixture of sandy peat and loam, in a moist sheltered spot with perfect drainage.

MOLOPOSPERMUM. — *M. cicutarium* is a hardy perennial, 5 feet or more high, with large graceful leaves which form a dense bush. It thrives in ordinary soil, and is useful for grouping with fine-leaved plants. Division and seed. *Carniola.*

Molopospermum cicutarium.

MONARDA (*Bee Balm*). — Border perennials of the simplest culture, thriving in any soil, and suited for borders or for naturalisation in open copses. The red kind scattered through American woods in autumn

is very handsome. *M. fistulosa* (Wild Bergamot) is a robust perennial, 2 to 4 feet high, the flowers variable; the usual colour is pale red, and every gradation almost to white may be found in it. *M. didyma* (Oswego Tea) is robust, about 3 feet high, the deep red flowers, borne in head-like whorls, continuing a long time in summer. *M. Kalmiana* is a showy plant, often 4 feet high, the deep crimson flowers in dense whorls. To see the true effect of this fine plant it must be massed in groups. In *M. purpurea* the deep purplish-crimson flowers are smaller. N. America. Division or seed.

MONTBRETIA (*Tritonia*).—Graceful and showy plants from the Cape, better than most S. African plants in their hardiness and vitality, even in the poorest conditions of soil and exposure, growing, indeed, like weeds, and so close that I have used them between shrubs to keep the ground free from weeds; and well they do it, giving very graceful bloom in masses towards the summer and autumn. In rich light soils they give little trouble; in clay soils where the drainage is less under control they are apt to fail, but we have seen them thrive in poor clayey soil if not wet. In badly-drained soils it is best to grow them in raised beds of good soil. All danger can be avoided by lifting, though some hold that this is injurious. The success which attends the planting of dry bulbs during the early spring months—frequently as late as April—is the best proof that the harm from drying such things is of small moment. Where both systems can be pursued in one garden a long succession of bloom will be the result. The spring planted stock of this year may remain undisturbed through the coming winter, to yield early bloom next year, while the batch that remained in the ground the winter previous is the one to be lifted this coming autumn. In this way there is little loss in a single year by deterioration, and the corms, if harvested at the right time and well kept—*i.e.*, cool and dry—will more than repay the labour and trouble involved. Even in those gardens where there is no real need to lift the roots the plan is of value for the longer time of blooming it ensures.

During recent years the *Montbretia* has been much improved, both as regards the size of the flowers and their colour. Of more imposing stature than aforetime varieties, with freer branching habit, more erectly-held sprays, and widely expanded flowers that face the observer, they make for greater garden display; in fine, are immeasurably superior even when compared to those raised little more than a decade ago. Those named are among the best of this modern race. Comet, crimson stained, very large; King Edmund, 3 to 4 feet, rich yellow; Lord Nelson, deepest of all, orange-scarlet and crimson, 3½ feet; Prometheus, one of the giants, orange and crimson flowers, 4 inches across; Star of the East, pure orange-yellow with lemon centre, probably the best yet raised; Westwick, orange and maroon; Queen Alexandra, apricot-yellow; Queen Mary, orange, dark purple stems; Nimbus, golden-yellow, very fine; Citronella, pale refined yellow, very beautiful; Queen Boadicea, 4 feet, orange and copper; His Majesty, yellow and brownish crimson; and Una, pale refined orange with crimson zone.

CULTURE IN THE WEST COUNTRY.—We have seen the Tritonias (of the *Montbretia* section) bloom every year freely on poor clay; the better soils and more copious rainfall of the west make a difference, and this note as to their culture in a Cheshire garden may be useful to any who work under like conditions: "To make them do well, the chief point is to keep them thin, and so they must be divided every year. This may be done any time in autumn before the ground is frozen up. My practice at Edge after digging them up—suppose there are twelve stalks, that is, twelve bulbs in each clump, with three or four young points to each bulb—is to have fifty or a hundred pots ready and to put three bulbs into each pot, filling up with any waste soil, drainage being superfluous. The less they grow before March the better. They must not be cut down till spring. When all the pots are full they are placed together in some sheltered spot out of doors and well watered—for if kept dry they die—then they are covered with a foot or two, according to weather, of dry leaves or other litter, enough to ensure their safety from frosts. By the end of March they are safe, and may then be planted out anywhere, letting the bulbs be at least 6 inches deep, either amongst herbaceous plants, which they like, or amongst low shrubs. I have some in beds of dwarf Roses, where they do

and look very well. As they increase at least fourfold every year, the gardener must harden his heart and not be tempted to let them grow more densely, but as he will find that most of his friends have as many as they want, throw the surplus on to the rubbish heap. I find one morning in each year enough for this work, which may be done in the roughest and most hasty way without detriment to the bulbs. Indeed, I have sometimes buried the clumps in a soil heap for winter, littering them over as described, and planting the bulbs out by threes in spring. The main objects are not to let them get frozen and not to let them get dry or grow during winter. I generally also replant three bulbs where I dig up each clump. If the winter is mild, these survive and the pots are not wanted; if they are killed, the pots take their place. They flower better if a spadeful of rich stuff is put in where each pot is planted.

MORÆA GLAUCOPIS (*Peacock Iris*).—A charming bulbous plant 9 to 15 inches high, with flowers in early summer, about 2 inches across, pure white, with a beautiful porcelain-blue stain nearly ⅓ inch broad, at the base of each of the three larger divisions. This stain is deep violet at the base, and edged with deep purple teeth. There is only one long narrow leaf. The plant should be grown on warm sheltered borders in sandy peat or sandy loam and leaf-mould. Increase by separation of the bulbs in autumn. S. Africa.

MORINA (*Whorl-flower*).—*M. longifolia* is a handsome and singular perennial, with large spiny leaves, resembling those of certain Thistles, and with long spikes of whorled flowers, 2 to 3 feet high. It is excellent for the mixed border, and for grouping with medium-sized perennials that have fine foliage. It thrives in ordinary soil. Nepaul. Seed.

MORISIA (*M. hypogæa*).—A pretty alpine plant from the mountains of Sardinia. The flowers, as large as a shilling and of a bright yellow, are on short stalks rising very little above the tufted foliage, in April and May, and the contrast between them and the dark glossy foliage is effective. It seems to do best in a light gritty soil, and the seed should be sown directly it is ripe.

MORUS (*Mulberry*). — Usually medium-sized trees of the temperate and sub-tropical countries, the best kind for our country is the Black Mulberry (*M. nigra*), a distinct tree of great value and beauty giving showers of fruit in hot days. The Mulberry often attains great age, and when old gives deep shade, thriving best always in sheltered gardens in deep soils. It is hardy, coming late in leaf, and the leaves fall with the first touch of the frost. It is often a beautiful lawn tree, though it may well take its place in the orchard or enclosed fruit garden, always, if possible, giving it a free deep soil.

It is not difficult to increase from cuttings or even pieces of branches, and by layers, but not by any means common to find good stocks of the trees in nurseries. A very much more cultivated species in Europe and other countries is the White Mulberry (*M. alba*) and its varieties, but as our country is too cold for silk cultivation it is of slight value with us, and the same may be said of the other kinds, the one exception being, perhaps, the American Red Mulberry (*M. rubra*), a native of the northern United States.

MUHLENBECKIA.—These graceful free-growing evergreen trailers are useful as coverings for trellis-work or rocks or stumps. The kinds in cultivation are natives of New Zealand; the best known, *M. complexa*, is a very rapid grower, with long wiry and entangled branches, small leaves, and rather inconspicuous white waxy flowers. *M. adpressa* is larger and has heart-shaped leaves, and long racemes of whitish flowers. *M. varia* is a small kind, with fiddle-shaped leaves, and is very distinct from either of the above.

MUTISIA.—Very curious and distinct half-shrubby climbers from Peru, with tendril-pointed leaves. Other kinds are natives of the Chilian Andes, and have simple leaves, rigid in texture, and their habit is, as a rule, bushy and not climbing. They are found at elevations sufficiently high to admit of their being grown out of doors in England, or at any rate in the warmer parts of the country, and yet the *Mutisias* are scarcely known in our gardens. Some few cultivators have been successful with *M. decurrens;* once or twice *M. ilicifolia* has been grown and flowered very well. *M.*

Clematis is the least delicate of the garden *Mutisias*.

M. CLEMATIS.—The first coloured picture of this species ever published in any English work was the plate in *The Garden*, 27th July 1883. It is a tall herbaceous climber, 10 to 20 feet high, with pinnate leaves, terminating in branched tendrils,

Mutisia.

the leaflets being covered on the under side with a fine silky down. There are very few instances of its successful culture, even in the south. This species is a native of New Grenada, Peru, and Ecuador, at elevations of from 6000 to 11,000 feet.

M. DECURRENS.—Of this, the most beautiful of the three garden *Mutisias*, a fine plate will be found in *The Garden* for 1883, p. 553. Mr Coleman has grown it well amongst Rhododendrons at Eastnor Castle; Mr Gumbleton, Mr Hooke, Mr Ellacombe, and Kew have also had it in good condition. Most cultivators kill this species by planting it in a hot, sunny, dry position. It wants a moist, cool soil, a sunny, airy position, and a few slender Pea-sticks to clamber upon. The stems when mature are wiry, the leaves strap-shaped, with the blade extending a long distance down the stem, forming very conspicuous wings. The midrib is prolonged into a stout wiry tendril, which holds on firmly to anything it once clasps. There are fourteen ray-florets, each half an inch across, spreading, and then curving elegantly downwards, their colour being brilliant orange. The disc is bluish-green.

M. ILICIFOLIA.—Native of Chili, where it grows over bushes. The plant has thin wiry stems, and every part is covered with a cobweb-like tomentum. The leaves are about 2 inches long, the margins spiny-toothed, the texture leathery, and the midrib extending beyond the blade, branching and forming a strong twining tendril. The flowers are axillary, 3 inches across, with from eight to twelve ray florets coloured pale pink, or sometimes white with pink tips; the disc is lemon-yellow. It is a distinct, interesting, and beautiful plant, but very difficult to grow.

MYOSOTIDIUM (*Antarctic Forget-me-Not*).—*M. nobile* is a lovely herbaceous plant about which very little is known. In its native isle it is a seaside plant, in damp sand. It has a thick root-stock, from which arise the large heart-shaped, shining green leaves. The erect stem is leafy all the way up, and is terminated by a loose corymb of flowers in colour like Forget-me-Not, but the shade of blue varies. After flowering, the plants should be kept in a cool and light position in a frame, and be liberally watered in dry weather. It is a native of the Chatham Islands, a small group in the Pacific, lying 400 miles east of New Zealand. It was flowered in several gardens of recent years, and very finely by Mrs Rogers, in Cornwall in the open air.

MYOSOTIS (*Forget-me-Not*).—Beautiful perennial and biennial marsh and alpine plants, children of the mountain and marsh land from many parts of Europe and our own land, and of high value and charming in all ways for gardens.

Myosotis alpestris.

M. ALPESTRIS (Alpine Forget-me-Not).—A compact plant of the loveliest blue flowers, thriving on the rock garden, in moist gritty soil. It should be surrounded by half-buried pieces of sandstone. There are various forms, some very dwarf, with

white and rose flowers. Princess Maud is a robust variety with rich deep blue flowers.

M. DISSITIFLORA (Early Forget-me-Not).—Beautiful and early flowering, 6 to 12 inches high, with large handsome flowers deep sky-blue, continuing till midsummer. It is best in broad masses in open spots of the rock garden, or wherever spring flowers are much valued.

M. PALUSTRIS.—Although common in wet ditches and by streams and canals throughout Britain, *M. palustris* should be grown in the garden among shrubs in peat beds, or for edgings, or as a carpet to taller subjects, in small beds or borders in moist soil. There are forms of this, one with white flowers, another with larger flowers than the type, whilst one is called *semperflorens*, from its long season of flowering.

M. REHSTEINERI.—One of the prettiest Forget-me-Nots, an effective close-to-the-ground creeper, practically forming a dense cushion of blue for several weeks in April and May. The plant thrives and spreads like a mossy Saxifrage, but keeps flat to the ground.

M. SYLVATICA (Wood Forget-me-Not).—A beautiful woodland plant, and of great value for the wild garden. It should be abundant in a wild state by wood walks, in copses, and sows itself freely in such places. For the garden, sow seeds in beds in August every year. Britain. Seed. There are a white, a rose-coloured, and a striped variety.

MYRICA (*Sweet Gale*). — The *Myricas*, though not showy flowering shrubs, are desirable on account of their scented foliage. The native Sweet Gale or Dutch Myrtle (*M. Gale*) should be wherever sweet-smelling plants are cared for. It is a thin bush, 2 to 3 feet high, having fragrant leaves. In a moist spot, such as a bog, it spreads by underground shoots and makes a large mass.

M. CERIFERA (Wax Myrtle) and also *M. Pennsylvanica* and *Californica*, N. American species, are less common. The last is a good evergreen of dense growth, with fragrant leaves, green through the winter. It is a vigorous plant, especially in light soils, and is hardy, but is little known outside botanical collections. The Wax Myrtle is met with in old gardens, where it was planted for its spicy foliage. I find our native Sweet Gale free and vigorous in stiff soils where few things grow well.

M. (COMPTONIA) ASPLENIFOLIA (Sweet Fern).—A quaint little shrub 2 to 3 feet high, with Fern-like long, cut into rounded lobes, and aromatic leaves. It spreads freely in sandy soils, and may be increased by layers, suckers, or seeds. A pretty plant in the sandy woods of many other parts of N. America. In gardens its place is among small shrubs and on the margins of peat beds.

MYRICARIA (*German Tamarisk*).—*M. germanica* is an elegant shrub, hardly differing from the common Tamarisk of our sea-coasts, with feathery foliage and many long plume-like clusters of small pink flowers. It grows 6 or 8 feet high in warm sandy soils, and, like the true Tamarisk, is a good shrub for dry banks where few shrubs would flourish.

MYRRHIS (*Sweet Cicely*). — *M. odorata* is a graceful native plant, with a peculiar but grateful odour and sweet-tasting stems, 2 to 3 feet high, with white flowers in early summer,

Myrrhis odorata (Sweet Cicely).

in compound umbels. Suitable for naturalising near wood walks and in open shrubberies in any soil, and may be used among fine-leaved perennials. Division.

MYRSINE AFRICANA.—A curious little evergreen found in many parts of the world—India, China, etc.—and of very neat habit. Thrives in the rock garden.

MYRTUS (*Myrtle*).—In southern and coast counties the Myrtle is hardy enough to be planted as a bush, for if

its shoots are killed by frosts it often recovers the following season. But the common Myrtle is most generally grown as a wall-shrub, and house walls could not have a more beautiful covering, especially if some pretty Clematis or other graceful climber be allowed to ramble amongst the Myrtle. There are many varieties of the common Myrtle, every one with sweet-smelling leaves, and all with white flowers. The chief sorts are the Dutch, Italian, Roman, Rosemary or Thyme-leaved, Nutmeg, Box-leaved, and Andalusian. Besides these there are some with variegated leaves, the leaves being striped with gold or silver, or spotted and blotched. In planting a Myrtle against a wall, choice should, if possible, be given to a space protected from northerly and easterly winds, which in spring are injurious to the leaves. S. Europe.

M. LUMA has proved hardy for many years at Gravetye, and is a very precious low tree, a native of Chile. Layers easily, thrives in ordinary soil.

NANDINA (*Heavenly Bamboo*).—*N. domestica* is a distinct and graceful shrub with dark leathery leaves, often flushed with red towards autumn. The flowers are small and whitish, in panicles, the berries about the size of peas, of a fine red. In our climate, it does not produce these freely, but it thrives in southern and western gardens, and is best grouped with American plants on peaty or free soil, best in half-shade. China and Japan.

NARCISSUS (*Daffodil*). — Beautiful bulbous flowers of mountain and alpine pastures, plains, or woods, thriving admirably in most parts of our island; if anywhere, better in the cooler northern parts and in Ireland, though excellent in cool soils in the south. They are to the spring what Roses, Irises, and Lilies are to summer, what Sunflowers and Chrysanthemums are to autumn, and what Hellebores and Aconite are to winter. No good garden should be without the best of the lovely varieties now known. Narcissi vary so much in form, size, colour, and in time of flowering, that a most attractive spring garden could be made with them alone; provided one had suitable soil, and a background of fresh turf, shrubs, and trees. The best of the commoner kinds should be planted by the thousand, and, indeed, in many cases this has been done with the best results. On grassy banks, on turfy bosses near the roots of lawn-trees, or in meadows near the house, their effect is delightful. All the best Narcissi, and practically all the forms of the yellow and the bicolor Daffodils, may be planted in June, July, or August, in three ways—in the lawn or meadow, in the beds and borders of the garden, or in 6- or 8-inch pots. Five bulbs should be planted in a pot and covered over with coal-ashes or sand until January, when they may be placed in a sunny frame, pit, or greenhouse, or even in a sunshiny window, and a crop of flowers can be secured earlier than on the open ground. The main points in beginning the culture of Narcissi are to get sound and healthy bulbs as early as possible after June, and to plant or pot them at once in good fibrous, sandy, or gravelly loam, or in any virgin soil. They like fresh deep-tilled loam, and the strongest of the bicolor and star Narcissi do not object to soils rich in manure; but it is as well to remember that no manure should be used in its raw or crude state, and that wild species and wild-collected varieties suffer and often fail if planted at once in heavily manured soils.

In naturalising the Daffodil on the grass, the Poet's Narcissus, or the Star Narcissus (*N. incomparabilis* in all its forms), do not begin as late as November or December by planting the sweepings out of the bulb-stores, since such bulbs are weak and flabby, and are liable to rot in the frozen ground. The time to begin planting is June and July, and it is a good rule to refuse to plant in quantity after August or September.

In grouping border Narcissi it will usually be found advisable to lift and replant the clumps every three or four years, but if any delicate varieties do not flower well, or if they show signs of weakness or of disease, they should be lifted not later than July, and after being cleaned, at once replanted in fresh and good soil, and, if possible, in shady or gravelly loam free from fresh manures. It is better to dig and replant Daffodils *too soon* than *too late*. The best time is when the leaves turn yellow in June or July. On well-drained loams resting on gravel, the bulbs lose both leaves and roots in June or July, and may be taken up and removed with advantage; and, indeed, where good round presentable

sale bulbs are grown, the rule is to dig them every summer as soon as the leaves wither. Whenever an amateur's stock of bulbs is divided, it is wise to replant some in fresh ground, and any surplus may be naturalised in grass. The rate of increase on good soils is surprising, such splendid sorts as N. John Horsfield, N. Empress, N. Grandee, N. Emperor, and N. Sir Watkin actually trebling themselves the second year after planting. The depth at which the bulbs should be planted varies according to the texture and the drainage of the soil. In strong or wet and retentive soils, shallow planting, say 3 to 5 inches beneath the surface, is ample, but on light, sandy, and well-drained soils, or on what are known as warm soils, the depth may vary from 6 to 12 inches—in a word, the bulbs should be as far as possible below the drought and frost line. The best grown private collections of these flowers I have seen are those at Great Warley, Essex, and at Totley Hall, near Sheffield, where the best kinds are grouped boldly by the thousand.

If cut flowers are desired, then bold groups on borders, in beds, or on grass sheltered by hedges or shrubs are desirable. The first crop can be obtained from pots or boxes in the greenhouse, and these will be followed by fully formed and bursting buds, in sheltered and sunny places. These buds will open large, fresh, and fair if placed in pots of water in a warm greenhouse or a sunny frame or window. In March and April comes the prolific harvest of golden open-air blossoms. In cutting Daffodils or Narcissi for indoor decoration, cut the flowers when the buds are opening, or even just before, and let the stalks be long, as the flowers group better with long stalks. Do not cut the leaves of choice kinds, but use leaves of common sorts with choice flowers. Put each kind in a separate glass, but put together as many of the same kind as you like.

Such delicate southern kinds as *N. Bulbocodium*, *N. triandrus*, *N. calathinus*, *N. juncifolius*, and most of the varieties of *N. Tazetta* may be grown in front of sunny walls on prepared peaty or on sandy borders, or else in glasshouses in the garden; but even in such places their flowers often suffer from spring storms, and the surest plan is to adopt pot-culture in a sunny frame. *N. viridiflorus*, *N. serotinus*, *N. intermedius*, *N. elegans*, *N. pachybulbus*, *N. Broussoneti*, etc., are interesting to collectors; but the difficulties of their culture are out of all proportion to their beauty, and those who only wish for large and beautiful flowers had better ignore them. Practically, we have only six species of Narcissus worth cultivating—*N. Bulbocodium*, *N. pseudo-narcissus*, *N. poeticus*, *N. Tazetta*, *N. jonquilla*, and *N. triandrus*. Then for naturalisation, or for ordinary garden culture, these six may be reduced to three groups—*N. pseudo-narcissus*, or the Ajax Daffodils *N. poeticus*, or the

Narcissus calathinus.

Poet's Narcissus; and the natural hybrid between these two species, the ubiquitous Star Narcissus—*N. incomparabilis*. These kinds are really the only free and hardy open-air Narcissi, and are the best for the meadow or the lawn.

Of the newer seedlings, perhaps the finest are N. "Ellen Willmott" and N. Mme. de Graaff, which first flowered at Leyden in 1883. N. Glory of Leyden is a yellow counterpart of it. The two were offered, one bulb of each, for seven guineas only a year or two ago. They are so vigorous, and they increase so fast in good soil, that buyers were amply repaid, high as these prices appear. N. Weardale Perfection, N. Monarch, and some others are so fine and so rare that they are practically not to be had, anything

less than ten guineas having been refused for a single bulb of N. Weardale Perfection. These are only show flowers, however, and many others not much less handsome may be had by the hundred or the thousand at a moderate price.

Narcissi flower in continuous succession from February until June; and when pot-culture and warm-house treatment is adopted, the double Roman Narcissus and the Italian paper-white Narcissus flower in November, and there are always some Narcissi in flower from that time to June.

HYBRID NARCISSI. — The species which have best lent themselves to the hybridiser's art are *N. pseudo-narcissus, N. poeticus, N. montanus, N. triandrus, N. jonquilla,* and *N. Tazetta.* The type hybrids are *N. incomparabilis, Bernardi* (both found wild), *Nelsoni, Barrii, Burbidgei, Humei, Leedsii, Milneri, tridymus,* and *odorus.* There are wild and garden hybrids between *N. Bulbocodium* and *pseudo-narcissus; N. triandrus* and *N. pseudo-narcissus; N. jonquilla* and *N. pseudo-narcissus; N. juncifolius* and *N. pseudo-narcissus; N. Tazetta* and *N. pseudo-narcissus; N. Tazetta* and *N. poeticus; N. poeticus* and *N. pseudo-narcissus;* and *N. montanus* and *N. poeticus;* and also *N. pseudo-narcissus* and *N. montanus;* while derivative hybrids have been obtained between some of these hybrids and some of the parent species. It is remarkable that while wild hybrids and garden seedlings usually enjoy richly manured soils, wild species and the white varieties of the Daffodil, *N. triandrus* and *N. Bulbocodium,* usually die out on deep richly manured borders, but frequently live on poor stony or sandy soils, on dry grassy banks, or amongst the roots on the sunny sides of hedges, shrubs, stone walls, and trees.

N. BIFLORUS (Primrose Peerless).—Similar in habit to *N. poeticus,* but has creamy-white flowers, two on a scape, and the rim of the primrose corona is scariose but colourless (*i.e.*, not purple). *N. biflorus* is now known to be a natural hybrid between *N. poeticus* and *N. Tazetta,* having been found wild with its parents near Montpellier by Mr Barr; and also raised from its parents in the garden by the Rev. Mr Engleheart. *N. biflorus* is naturalised in England and Ireland, but is a native of Europe. It is one of the easiest of all the kinds to naturalise, and spreads rapidly, but is usually supposed not to bear seed. N. Dr Laumonier (Wilks) is a very fine seedling of this group.

PRINCIPAL SPECIES OF NARCISSI.

N. (CORBULARIA) BULBOCODIUM (The Hooped Petticoat Daffodil).—This is one of a kind with slender rush-like leaves. In Spain it grows in wet meadows during winter and spring, but is dried up throughout summer and autumn. The types are golden-yellow in Spain and Portugal, sulphur-yellow in S. France, as at Biarritz and Bayonne, one variety in the Pyrenean district (*N. Grœllsii*) is whitish, but in Algeria grows the exquisite snowy-white *N. monophyllus.* Hybrids between *N. Bulbocodium, N. triandrus,* and the Daffodil have been obtained in gardens, and are also found wild. The main varieties are *conspicuus,* a large, rich, golden-yellow kind with green rushy leaves; *tenuifolius,* a small golden form, having a six-lobed rim to the corona, and very long rush leaves which lie on the ground; *nivalis,* abundant in Portugal and near Leon in Spain, a small golden kind with short erect leaves; *præcox,* a large early-blooming form, found by Mr Barr in Spain; *citrinus,* a pale French form, varying much in size; *Grœllsii,* the European white; and *monophyllus,* the African white. These are dainty bulbs for pots or for choice borders on warm dry soils. They can rarely be naturalised in our country.

N. CYCLAMINEUS (Cyclamen Daffodil).—A dainty but not showy species, easily grown in a peat-earth rock garden or in pots of peaty compost. It seldom exists from year to year in the open air. It has lived on grass in peat, and, no doubt, could be naturalised easily enough on sandy peat soils which are wet in winter and spring and dry in summer and autumn. In April 1892 I saw a most lovely specimen low down in a damp little grassy bay beside a mill-race at Mount Usher in Wicklow. *N. cyclamineus* likes the sides of a stream, and is found by streams in Portugal. Like *N. triandrus,* it is readily raised from seed, and the seedlings flower the third year. It is 6 to 8 inches high, and the scapes are about the same length, each bearing a bright golden reflexed flower. It has sap-green leaves. There are large and small forms, and a bicolor variety seems to have been known long ago. *N. cyclamineus,* although but lately re-discovered, was figured in French books early in the seventeenth century. Like *N. Johnstoni,* it came from Oporto in 1884-85.

N. INCOMPARABILIS (Star Daffodil).—To this group belong *N. incomparabilis, Barrii, Burbidgei, odorus, Backhousei, Nelsoni, Sabinei, tridymus,* and the Pyrenean wild hybrid *Bernardi,* which is found

wherever *N. variiformis* and *N. poeticus* occur together. Of *N. incomparabilis* there are over a hundred named kinds, the best being: Sir Watkin or Welsh Peerless, Gloria Mundi, Queen Sophia, C. J. Backhouse, Princess Mary, Gwyther, *splendens*, Beauty, Autocrat, Frank Miles, Cynosure, James Bateman, King of the Netherlands, Commander, Figaro, Goliath, Mabel Cowan, Mary Anderson (delicate, but of a splendid colour), Fair Helen, Lulworth, St Patrick, and Queen Bess. Mr Engleheart has a large series of shapely seedlings with richly coloured crowns, such as "Southern Star," Lettice Harmer, Red Prince, Beacon, and White Queen. There are three or four handsome double forms of *N. incomparabilis*, long known in gardens. The most abundant of these is *incomparabilis fl.-pl.* (Butter and Eggs). There is a white variety, with vermilion chalice segments, known as Eggs and Bacon or Orange Phœnix; and a pale sulphur double called Sulphur Kroon, which is exquisite if well grown. Sulphur Kroon is often known as Codlins and Cream.

Of Barr's Peerless (*N. Barrii*, hybrids), the best are *Conspicuus* and Sensation, but Golden Star, Crown Prince, Flora Wilson, Miriam, Barton, Orphée, General Murray, Albatross, Sea Gull, Maurice Vilmorin, and Dorothy E. Wemyss are all good, and are useful for extended culture on grass or for cut flowers.

The Burbidge hybrids are like the *Barrii* forms, but have small crowns. Their chief value lies in the freedom and earliness of their bloom, as they open days before even *ornatus*—the early April form of *N. poeticus*. The best varieties are *Burbidgei* (type), Agnes Barr, Beatrice Heseltine, Baroness Heath, Constance, Crown Princess, Ellen Barr, John Bain, Little Dirk, Model, Mrs Krelage, and Mary.

Of Leeds' Silver Star forms the best are exquisite on good sandy soils, and their whiteness, delicate purity, and grace render them most acceptable as cut flowers. The best are: *N. Leedsii* (type), *amabilis*, Beatrice, Hon. Mrs Barton, Katherine Spurrell, Duchess of Westminster, Madge Matthew, *elegans*, Minnie Hume, *superbus*, Princess of Wales, Magdalina de Graaff, Gem, Grand Duchess, Acis, and Palmerston. Hume's hybrids are deformed Daffodils, the best being Giant and *concolor*. Sabine's hybrid (*N. Sabinei*) is a bold white bicolor, with a shortened trumpet, and so are the so-called Backhouse hybrids—Wolley Dod and William Wilks, a shapely and effective flower of good substance and with vigorous leaves.

More starry, but with smaller cups, are Nelson's hybrids; tall, free, and distinct habit; the best, *Nelsoni major*, *minor*, *pulchellus* (perfect shape), Mrs C. J. Backhouse, *aurantius* (orange-red cup), and William Backhouse. Collected bulbs of *N. Bernardi* are very variable in size and form, and some, like E. Buxton, have fine orange-red cups, which resemble Nelson's *aurantius*. *N. tridymus* is a variable hybrid between the Daffodil and *N. Tazetta*, with two or three flowers on a scape.

N. JONQUILLA (Jonquil).—Long known in gardens, and imported from Italy and Holland for forcing in pots. Much grown at Grasse, Cannes, etc., for its perfume. *N. stellaris* has narrow perianth lobes, and *N. jonquilloides* is a robust form from Spain. The varieties *gracilis* and *tenuior* are now supposed to be hybrids between the Jonquil and some other species, or between *N. intermedius* and *juncifolius*, *N. intermedius* itself being a hybrid between some form of *N. Tazetta* and the Jonquil. The Jonquil, when strongly grown on a warm border, is handsome and very sweet-scented, and *N. gracilis* is the latest of all single Narcissi, as it blooms with *N. poeticus fl.-pl.* in May or early June. The double Jonquil is rarely seen doing well in open ground, but as a pot-plant it is handsome. S. France and Spain.

N. JUNCIFOLIUS (Rush Jonquil).—A small plant, suitable only for sheltered borders, for stone edgings, and for pot-culture in a cold frame. It is very variable, and *rupicola*, *minutiflorus*, and *scaberulus* are well-known variations. Its small Jonquil-scented flowers have very large cups, often widely expanded, which are crenellate at their edges. The var. *rupicola* flowers and seeds annually in the Rock Garden at Edinburgh Botanical Gardens, and seems hardier than the type.

N. ODORUS (Great Jonquil). — This plant, although found wild in S. France, Portugal, and N. Spain, is now believed to be a hybrid = *N. jonquilla* × *N. pseudo-narcissus*. The leaves are rushy, and two or three yellow starry flowers are borne on each scape. The best kinds are *N. odorus* (Campernelle) and *rugulosus*, a more robust form, with larger flowers. A double form, very handsome on warm soils, is known as Queen Anne's Jonquil.

N. POETICUS (Poet's or Pheasant's-eye Narcissus).—One of the oldest and most popular of garden flowers, and erroneously supposed to be the Narcissus of the Greek poets. It is widely distributed in France and Germany, and extends to the Pyrenees. In upland meadows of the Pyrenees it is very abundant in June and July. It flowers from the beginning of April until June. The older forms of *N. poeticus* are now far surpassed by Mr Engleheart's new seedlings, such as Dante, Petrarch, and many others. *N. ornatus* is now grown by the million for Easter decoration. *N. grandiflorus* is a

Narcissus Emperor.

very large floppy variety, *N. poetarum* has a saffron-red crown, and *N. tripodalis* has reflexed segments and a bold crimson-scarlet ring. The typical *N. poeticus* is a tall plant, with a small shapely flower, but is not often seen. *N. Marvel* has a bladder-like spathe like an Allium, and a pale and shapely flower. *N. patellaris* has a broad crown and a saffron rim, and blooms late; but the form usually met with early in May is *N. recurvus*, the Pheasant's-eye of cottage gardens. *N. recurvus* has a green eye and a crimson-fringed crown. All the forms, especially *ornatus* and *recurvus*, naturalise perfectly, and of recent years bulbs have been dug on the Pyrenees by the thousand for naturalisation. They are so variable in habit, size, shape, and colour that any number of varieties could be selected from them. The June-flowering double form of *N. patellaris*, or Gardenia Narcissus, is very fine. It does well on sandy deep borders. It is a shy flowerer, and many of its buds go blind, so that half the stock should be transplanted every year in August. *N. stellaris*, the latest single form of *N. poeticus*, flowers in June. Some very fine and shapely seedlings of *N. poeticus* have been raised by Mr Engleheart.

N. PSEUDO-NARCISSUS (Common Daffodil).—There are several hundred varieties of the Common Daffodil, either wild or cultivated. The only native of Britain is the common English kind, which extends from Cornwall to Fife, and is specially plentiful in the south-eastern counties. In Normandy, Daffodils by millions light up the woods in April, while many fine forms are wild in Spain and in the Pyrenean region, and the richest of golden Daffodils come from Spain and Portugal. The Rev. C. Wolley Dod found *N. maximus* growing between Dax and Bayonne, probably naturalised. Nearly all Daffodils do well on grass, if the soil be at all suitable; and as regards our wild English Daffodil, the grass is the only place in which to grow it permanently. Daffodils are usually divided into three groups—first, golden Daffodils, such as *N. maximus*, Tenby, and *spurius;* secondly, bicolors, such as John Horsfield, Empress, Grandee, etc.; thirdly, sulphur and white kinds, such as Exquisite, and the white Daffodils, such as the wild Pyrenean and *N. moschatus*. Nearly all the golden kinds are robust and easily grown, and the bicolor group are even more so, but, speaking broadly, the delicate sulphur and white sorts are tender and unsatisfactory, except on the most favourable soils. The following are the best in each group:—

Golden Daffodil Group. — *Abscissus* (*muticus*), Ard Righ, Emperor, Countess of Annesley, Bastemil, Captain Nelson, *spurius*, *coronatus* (General Gordon), Golden Spur, Distinction, *obvallaris*, Henry Irving, Glory of Leyden, Golden Prince, Golden Plover, Golden Vase, Her Majesty, John Nelson, *spurius*, *major*, *maximus*, M. J. Berkeley, and Mrs Elwes. *Nanus* and *minor* are dwarf varieties, *minimus* is the smallest of all the Daffodils. Shakespeare, Hodsock's Price, Fred. Moore, Wide Awake, Marchioness of Headfort, P. R. Barr, *rugilobus*, Santa Maria, Samson, Sir W. Harcourt, Townshend, Boscawen, Stanfield, Croom a Boo (Ard Righ with a frilled trumpet), Weardale Perfection, "Ellen Willmott," Monarch,

Narcissus Snowdrop

and many others are not as yet much grown.

Bicolor Group.—Empress, John Horsfield, Grandee, Dean Herbert, Michael Foster, Alfred Parsons, George C. Barr, Harrison Weir, J. B. M. Camm, John Parkinson, Mrs Walter Ware, Mad. Plemp, T. A. Dorien Smith, and *variiformis*. Carrie Plemp, Princess Colibri, Duchess of Teck, and Victoria are new kinds.

White and Sulphur-flowered Group.—Moschatus, *albicans* (Leda), *cernuus* (very variable), Cecilia de Graaff, Colleen Bawn, *cernuus pulcher*, C. W. Cowan, Dr Hogg, Exquisite, J. G. Baker (*volutus*), F. W. Burbidge, Lady Grosvenor, Galatea, Mme. de Graaff, Mrs F. W. Burbidge, Mrs J. B. M. Camm, Mrs Thompson, Helen Falkiner, *pallidus præcox* (the variable sulphur Daffodil of Biarritz and Bayonne), *pallidus asturicus*, Princess Ida, Sarnian Belle, *tortuosus*, Wm. Goldring, W. P. Milner, Minnie Warren, Countess of Desmond, Robert Boyle, Silver Bar, Mrs Vincent.

The best of the double Daffodils are —*Telamonius plenus* (Van Sion), very free and robust, naturalised everywhere; double English, *minor plenus* (Rip van Winkle); *lobularis plenus; Scoticus plenus; plenissimus* (Parkinson's great rose double);

capax plenus (*Eystettensis*), an exquisitely pretty and pale six-rowed double, but requiring a warm sandy soil, and remarkable as being a distinct double, of which the single type is unknown; *Cernuus*, *C. bicinctus*; the last do well in warm, stony soils, and, like other delicate kinds, enjoy the company of tree, shrub, or Rose roots.

Johnstoni (Johnston's hybrid Daffodil) was found by Mr A. W. Tait near Oporto in 1885, and figured in *Bot. Mag.*, 7012; it is a natural hybrid, between *N. pseudo-narcissus* and *N. triandrus*, and is variable, Mr Tait having in March 1892 sent me a bicolor form (Garrett × *N. triandrus albus*). The best forms are *N. Johnstoni* (type), Queen of Spain, Mrs Geo. Cammell, Pelayo, and Mr Tait's new bicolor form to which I have above alluded. The Rev. G. H. Engleheart has repeated crosses between the parent species, and has produced a pale sulphur or white *Johnstoni* (Snowdrop) and others.

N. TAZETTA (Polyanthus or Bunch Narcissus).—This is the classical Narcissus of Homer and other poets, Greek and Roman—the flower of a hundred heads that delights all men, and lends a glory to the sea and the sky. *Tazetta* is focused in the Mediterranean Basin, but extends from the Canary Islands to the north of India and to Japan. It has long been naturalised in the Scilly Isles and in Cornwall; but its early habit of growth, acquired in more sunny climes, often with us causes the flowers to be injured by frosts and storms. These Narcissi are hardy on warm dry soils, and as pot-plants many of them are handsome, while in deep, warm, sandy borders, which are sheltered by sunny walls or by plant-houses, they frequently do well, but as a rule bulbs must be imported from France, Italy, or Holland every year. The earliest are the double Roman and the paper-white (*N. papyraceus*). One variety from China may be grown in a sunny window if placed in water, and the bulbs submerged and held in position by gravel or stones. The growth of this variety is rapid, and good bulbs produce five to eight spikes. Its shop name is "Sacred Narcissus" or Chinese "Joss Lily."

The best varieties are Grand Monarque, States-General, Newton, Scilly White (White Pearl), Soleil d'Or, Bathurst, *Baselman major* (*Trewianus*), *Gloriosus*, *Sulphurine*, Czar de Muscovie, Grand Sultana, Grand Primo Citroniere, Luna, Her Majesty, Queen of the Netherlands, Lord Canning, and Golden Era.

N. Baselman minor is now proved by Mr Engleheart and others to be a hybrid between *N. Tazetta* and *N. poeticus*, and a similar hybrid has been found wild near Montpellier.

N. TRIANDRUS (Ganymede's Cup).—A distinct and elegant species which is rarely happy out of doors except on warm, moist and sheltered borders, or in nooks of the rock garden, but which as a pot-bulb has no superior for delicate beauty, its flowers rivalling in texture those of the Cape Freezias. The late Mr Rawson, of Fallbarrow, Windermere, grew it in pots, and his specimens bore fifty to a hundred flowers. His plan was to rest it thoroughly after the leaves faded, and then to top-dress the bulbs, and rarely or never to re-pot them. As a rule, *N. triandrus* is short-lived, but it naturally reproduces itself from seeds, which bloom the second or third year after sowing. The principal varieties are *N. albus* (Angel's Tears), *N. calathinus* (a robust form from the Isle de Glennans), and L'Ile St Nicholas. On the coast of Brittany, *N. calathinus* grows among rocks and short sandy sward close to the sea, and within reach of its spray during rough weather. *N. pulchellus* has a primrose perianth and a white cup, and is very pretty. In the late Mr R. Parker's nursery at Lower Tooting, in 1874, it was very strong and healthy in an open-air bed resting on the gravel, and some of its scapes bore seven or nine flowers. No other Narcissus has a cup paler than the perianth segments. *Pulchellus* has recently been found wild in Portugal and Spain.

NEW HYBRID AND CROSS-BRED NARCISSI.—Every year we have the pleasure of seeing new and improved seedlings by the score, and any one may raise seedlings for themselves if they will take the trouble to cross-fertilise the flowers either as grown in pots in cool greenhouse or cold frame, or in open-air borders. In some gardens, as at Chirnside and Kilmacurragh, series of natural cross-bred kinds have appeared spontaneously, and this is doubtless how White Minor, St Austin, Countess of Desmond, and many other Irish forms appeared.

DISEASES AND INSECTS.—As Narcissi may be grown on dry warm soils, or in grassy lawns and meadows, the insects and fungoid diseases that would affect them on deep-dug and highly manured borders are few and far between. Neither cattle nor sheep molest them, and game and poultry, and even the more voracious of rabbits and the most impudent of town-sparrows leave the flowers alone. That their leaves and roots are poisonous, or acridly narcotic, may account for this. In some gardens and nurseries the larva of the Narcissus Fly (*Merodon equestris*) infests

old bulbs, and whenever bulbs are imported from abroad or are dug for replanting, this larva should be searched for and exterminated. The bulbs affected may generally be known by their necks feeling soft when pinched. All such bulbs should be cut open and the larvæ extracted and killed. Such means are the only cure, as no insecticides will kill the pest without destroying the bulbs. The pest checks both root and bulb growth, but after the larvæ are removed the rare bulbs recently infected may be planted for stock, for although the heart be eaten away, the lateral buds at the base of the bulb-scales often produce young bulbs.

N. poeticus and its varieties have rarely been infected by a leaf fungus (*Puccinia Schrœteri*), and so far its ravages have been limited.

Bulbs of Narcissus are now and then found to be afflicted with black canker or "black-rot," probably caused by *Peziza cibovioides*, but so far little serious injury has been done. The most insidious disease that affects Narcissi is one to which Mr C. W. Dod some few years ago originally drew attention, under the name of "basal rot." The stunted flowers come up prematurely, while the leaves have a diseased appearance, and are much dwarfed and contorted. The base of the bulb rots away, while no roots are formed from the disc, and the wet and flabby bulb-coats are more or less discoloured, as if parboiled. This disease is most prevalent among white Daffodils, white single and double; but yellow kinds such as Ard Righ and *maximus* are affected on wet and cold soils, and even *N. Tazetta*, *N. Leedsii*, and *N. jonquilla* are also affected. In many cases this disease is checked by annual digging and replanting in July or August; and sometimes bulbs, affected on deep rich borders, have recovered on being transplanted to grass or beds of moss and Brier Roses. Cold and wet, or even richly manured soils, seem especially conducive to this disease, and the only remedy is to alter the conditions of growth as soon as the leaves have died away. A celebrated northern grower of Narcissi tells me that some sorts that formerly failed on level borders do well on the drier and warmer grassy banks to which he transferred them. Facility in altering conditions of growth is often the best way to save plants that show signs of disease or failing in any way. It is a great consolation to know that many of the best and most showy kinds, if broadly and naturally grown on the grass of meadow or of outlying lawn, are rarely, if ever, afflicted seriously with the above pests.

NEILLIA (*Nine Bark*).—*N. opulifolia* is a hardy shrub generally known as *Spiræa opulifolia*. Usually 3 to 5 feet in height, but in good soils and in sheltered places it makes a bush 8 or 10 feet high, and as much through. It blooms about mid-summer, the small white flowers being borne in dense feathery clusters. The yellow tinge of the foliage is extremely bright, and at a distance looks like a glowing mass of yellow bloom. This variety is a hardy and vigorous shrub suitable for planting anywhere. Other kinds as yet little known in gardens are *N. Amurensis*, *N. thyrsiflora*, *N. Torryii*, *sinensis*, and *capitata*.

NELUMBIUM (*Yellow Sacred Bean*).—*N. luteum* is the hardiest known Sacred Bean, and therefore the one most interesting for northern gardens. Its large blossoms are a pale yellow, and its large round leaves arise boldly out of the water 3 to 4 feet. I have seen it flower strongly in the Garden of Plants at Paris; it remained out all the winter in a fountain basin in a sheltered and warm nook in the open air. It would probably flower out of doors in a sunny and sheltered spot in the south of England. It is rare, but may be procured from America.

NEMESIA.—Pretty hardy annuals of the simplest culture, *N. floribunda* growing about 1 foot high, and bearing in summer fragrant Linaria-like blossoms, white with yellow throats. *N. versicolor* has blue, lilac, or yellow and white blossoms; and its variety *compacta*, blue and white flowers. If sown in ordinary soil in masses in early spring and then well thinned, the plants will have a pretty effect for several weeks after June. In *N. strumosa* the flowers display a variety of colours, white, pale yellow, and shades between pink and deep crimson. It grows 12 to 15 inches high, and has five or six stems, each of which bears a head of flowers, blooming from summer until late in autumn. The blue forms are charming in effect, but seem dying

out. Sow in heat in March, and transplant the seedlings in May, or sow in the open ground after the middle of May. S. Africa.

NEMOPHILA (*Californian Bluebell*).—Pretty Californian hardy annuals of much value for our gardens. The species from which the cultivated varieties have been derived are *N. insignis*, *N. atomaria*, *N. discoidalis*, and *N. maculata*. *N. insignis* has sky-blue flowers, and its varieties are *grandiflora*, *alba*, *purpurea-rubra*, and *striata*. *N. atomaria* has white flowers speckled with blue. Its varieties are *cœlestis* (sky-blue margin), *oculata* (pale blue and black centre), and *alba nigra* (white and black centre). *N. discoidalis* has dark purple flowers edged with white, and the flowers of its variety *elegans* are maroon margined with white. *N. maculata* has large white flowers blotched with violet, and its variety *purpurea* is of a mauve colour. These kinds are all worth growing. They thrive in any soil, and are of the simplest culture. In spring some pretty combinations may be effected by arranging the masses in harmonising colours. All Nemophilas are well suited for edgings and for filling small beds, as they are compact in growth. The *insignis* section should always be preferred to the others. Seeds should be sown early in August for spring flowering, and in April for summer flowering. To secure a good display of flower, however, the best time to sow is in August, and the soil should be a light one, where the seed can germinate freely, and where the plants will not become too robust before winter sets in. If the seed be sown where the plants are to flower, the results will be most satisfactory; but if transplanting be necessary, it should be done early in the winter. These plants often give prettier effects in the cooler northern parts of the country and in Scotland.

NEPETA (*Cat Mint*).—Herbaceous perennials, of which *N. macrantha* has rather showy purple flowers, but is too tall and coarse for the border. *N. Mussini* is an old plant, flourishing in ordinary garden soil, and was once used for edgings to borders, a purpose for which its compact growth suits it well; but none of these plants are among the best for choice borders.

NEPHRODIUM. — N. American Ferns, some hardy and very handsome, and these thrive under the same conditions as our native Ferns. The chief sorts are *N. Goldieanum*, *N. intermedium*, *N. marginale*, and *N. noveberacense*. Several Japanese and Chinese species thrive without protection in mild localities, but they cannot be recommended for general culture. *N. fragrans* is a sweet-scented little form. It is somewhat delicate, but thrives in a sheltered situation.

NERTERA (*Fruiting Duckweed*).—*N. depressa* is a pretty creeping and minute plant, thickly studded with tiny reddish-orange berries, and with minute round leaves which are suggestive of the Duckweed of our stagnant pools. It forms densely matted tufts in the open air, best perhaps on level spots in the rock garden. It is also often grown in pans, and out of doors in some places may require protection in winter. *N. depressa* may be propagated by dividing old plants into small portions and placing them in small pots in a gentle heat until they start into growth, and then removing them to a cooler atmosphere. New Zealand.

NEVIUSIA ALABAMENSIS (*Snow Wreath*).—Introduced in 1882, the objection generally made to it is that the flowers, instead of a snowy whiteness, are a dingy green. The foliage resembles that of *Spiræa opulifolia*. Of this shrub Mr John Saul, of Washington, U.S.A., has written: "Large bushes in my nursery were covered with flowers of the purest snow-white. The small flowers, from their immense number and purity and their light airiness, could be likened in justice to waves of flickering snow. It appears quite hardy, as it passed through 10 degs. of frost on four nights last winter, which killed many tender subjects, without being harmed in the least. It is easily raised from suckers, which spring up in numbers around the parent plant and can be taken off with roots attached."

NICANDRA.—*N. physaloides* is a pretty Peruvian half-hardy annual, about 2 feet high, of stout growth, bearing in summer numerous showy blue and white bell-like flowers, and thriving in an open position in light soil. Seed should be sown in heat in early spring or in the open air about the end of March, and the seedlings should be transplanted in May. One

plant is sufficient for a square yard. S. America.

NIEREMBERGIA.—The only quite hardy Nierembergia is *M. rivularis* (White Cup), one of the handsomest of all. The stems and foliage trail along

Nierembergia rivularis.

the ground like those of the New Holland Violet, while barely pushed above the foliage are open cup-like creamy-white flowers, usually nearly 2 inches across. They continue during the summer and autumn, and have a pleasing effect in the distance, as they suggest Snowdrops at first, and are quite as pretty when closely viewed. To ensure success with Nierembergias have heavy, firm soil, a level surface, and sunny aspect. The tender Nierembergias are *N. frutescens*, a sub-shrubby plant of erect growth, and *N. filicaulis*, or *gracilis*, as it is called, which has slender drooping branches. Both have pretty white flowers pencilled with purple, and are suitable for the rock garden in summer or for drooping over the edges of vases. Propagate by cuttings in spring in heat.

NIGELLA (*Fennel Flower*).—Hardy annuals of the Crowfoot family, all curious and pretty with feathery Fennel-like foliage and bluish or yellowish blossoms. *N. sativa*, *N. orientalis*, *N. damascena* (Devil-in-a-Bush), and *N. hispanica* are the kinds cultivated, *N. hispanica* being the prettiest, growing about 1 foot high, and with showy blue flowers from July onwards. There is a white variety and a variety with deep purple blossoms. All the Nigellas should be sown in March, in light warm soil in the open border. They should be sown in the place which they are to occupy, as they do not succeed so well if transplanted. If sown in autumn, the seedlings often survive the winter and flower early and well.

NOLANA (*Chilian Bellflower*).—Pretty hardy annuals from S. America—*N. paradoxa*, *N. prostrata*, and *N. atriplicifolia* among the best. They have slender trailing stems, and flowers generally blue. *N. atriplicifolia* has beautiful and very showy blue flowers with a white centre, and there is a white variety (*N. a. alba*). The Nolanas are suitable for borders or for the rock garden, as they thrive in any warm open situation in good light soil. As seedlings do not transplant well, seed should be sown in the open in March, and the plants well thinned out. Seeds.

NOTHOFAGUS (*Southern Beeches*).—A very interesting group of trees, quite

Nigella damascena.

distinct from our Northern Beeches, and, though as yet little tried in our country, likely to give us in time some of the most beautiful trees for the lawn and pleasure ground, but only in

the southern parts of our isles. Some are evergreen and some are summer-leafing, and all love cool and moist places. First among them is the Antarctic Beech, thought to be about the best for our land; next, *Betuloides*, a native of S. America (Terra del Fuego), has been several times introduced, but not very successfully, although there are several trees of it on high southern ground; the Mountain Beech of New Zealand is another: it thrives in Surrey; Cunningham's Beech, a native of Tasmania, succeeds in the Isle of Wight and also in S. Ireland. *N. Fusca*, a native of New Zealand, also thrives in Surrey; and Moore's Australian Beech, found in New South Wales, does well at Kilmacurragh, Co. Wicklow, but cannot be said to be hardy, except in the mildest parts of our land. Among the most charming experiments for the tree-lover to make would be these Southern Beeches, but the trouble is that for some time it may be difficult to get healthy young stock.

NOTOSPARTIUM (*Pink Broom of New Zealand*). — *N. Carmichaeliæ* is much like some of the Brooms, hence its name, the leafless, graceful shoots studded late in June with small bright rosy flowers in clusters towards the point. Its graceful growth is well seen in the bolder arrangement of the rock garden. In New Zealand it grows 20 feet in height, and seems to be fairly hardy here, though not a shrub for cold climates or exposed places.

NUPHAR (*Yellow Water-Lily*). — Bold water plants nearly allied to the Water-Lily, but not so handsome. The most familiar Nuphar is the common Yellow Water-Lily (*N. lutea*), which inhabits many of our lakes and slow-running rivers. It has a very interesting little variety called *pumila*, which is found wild in some of the Highland lakes, and which has the same vinous perfume as the type. *N. advena* is the N. American ally of our yellow Water-Lily, and resembling it, but larger and with leaves which stand erect out of the water, and is a much finer plant. *N. Kalmiana*, also a N. American kind, much resembles the small variety of *N. lutea*, and is an interesting plant to grow in company with it. The cultivation is quite simple—placing the root-stocks in water 2 or 3 feet deep, when they will soon root in the mud; but they are apt to increase too rapidly, and may prove troublesome to get rid of.

NUTTALLIA (*Osoberry*).—*N. cerasiformis* is a hardy shrub, and one of the earliest to flower. Hardly before winter is past its abundant drooping racemes of white flowers appear, and they usually do so before the leaves. When in bloom it bears a resemblance to the Flowering Currant, and forms a dense bush, 6 to 12 feet high, growing in any kind of soil. California.

NYCTERINIA.—Half-hardy annua's from the Cape of Good Hope. *N. selaginoides* grows about 9 inches high, forming dense compact tufts of slender stems, in late autumn covered

Notospartium Carmichaeliæ.

with small white, orange-centred blossoms fragrant at night. *N. capensis* is about the same size as *N. selaginoides*, and is of similar growth, its flowers larger, and not of so pure a white. *N. selaginoides* and *N. capensis* require

to be sown early in heat, and to be transplanted in May in light, rich sandy loam in warm borders.

NYMPHÆA (*Water-Lily*).—A beautiful family of water plants, distributed over many parts of the world, some of the northern kinds hardy. Our own native Water-Lily was always neglected and rarely effective, except in a wild state; but when it is seen that we may have in Britain the soft and beautiful yellows and the delicate rose and red flowers of the tropical Water-Lilies throughout summer and autumn, we shall begin to take more interest in our garden water flowers, and even the wretched formless duckponds which

Hardy American Water-Lily (*N. tuberosa*).

disfigure so many country seats may have a reason to be. The new hybrid kinds continue blooming long after our native kind has ceased, and from the middle of May to nearly the end of October flowers are abundant.

Culture of Hardy Water-Lilies.—These lovely water flowers are not difficult to manage. A simple way of planting is to put the plants with soil in some shallow baskets and sink these to the bottom, and before the basket has rotted the plant will have fixed itself to the bottom. Or in ponds where there is a rich muddy bottom I plant by tying a drain-pipe or a piece of waste iron to a root and throw it in where the water is between 18 inches and 2 feet deep. The best season for planting is the spring, and plants put in in April or May make sufficient progress to flower before summer is gone. They are often grown in brick and cement tanks, sunk in the ground to a depth of from 2½ to 3 feet. These, with a foot of soil and the rest water, would grow excellent Water-Lilies, and the plants do not want a great depth of water over their crowns. It would be well to arrange that at least a foot might cover them in winter, and then they are virtually safe from frost. They grow better in the mud of ponds and lakes than under the more artificial conditions of the cemented tank. But if neither ponds nor tanks are available, these Water-Lilies can still be easily grown, for, as M. Latour-Marliac says, like Diogenes, they can content themselves in a tub.

"The enemies of Water-Lilies are water-rats and swans and other water birds, especially moorhens, which often pull them to pieces. Moorhens are very destructive to the flowers, and should be closely watched. There is, however, another enemy. We noticed it first from seeing leaves detached and floating. On the water becoming clearer one could see what appeared to be small bits of stick an inch or so long attached in numbers to the leaf-stalk. It was the grub of the caddis-fly, with its house upon its back. In the hollow stick it was safe from the fish, and, fastening upon the young and tender leaf-stalk, the grubs fed away until the leaf was eaten asunder. Strongly-established plants are not likely to suffer, but a watch should be

kept on young plants if rare varieties." The common water-rat or vole is an active destroyer of the flowers, and where it inhabits water, as it commonly does all ponds and streams, nearly all the flowers will be destroyed if this animal is not constantly kept down.

In the recent story of our open-air gardens, there have been no gains so good as those which have transformed our waters into gardens of beautiful, hardy plants. Wherever there exists a streamlet, we may arrange a water garden, and in the many places where pieces of water already exist, nothing is easier than to establish colonies of these flowers, of charming effect from June to September. The water is best when open to the sun, renewed by only a small inflow, and if possible sheltered from rough winds by the lie of the land or by a belt of shrubs. The water should be cleared of coarse weeds, and in most cases the natural mud is the best soil in which to plant. In artificial pools a layer of soil may be prepared by mixing loam with a little sand and some of the rich deposit of grit, leaves, and mud so often left behind by water when in flood. This is the natural food of the Water-Lily, and manure only excites rank leaf-growth and predisposes to disease. Little mounds may be made by laying a few sods together, but if the depth of water makes this difficult the plants may be simply lowered into place—planted firmly in baskets—and the mud pressed around them. May is a good time for planting, and (for established plants) the flower season begins in June, reaches its height in August, and in good years lasts into October. After growing for three or four years, some kinds get too thick, and these may be raised and divided late in April; others we have had in the same place for ten years with no loss of health or bloom.

A crowded water garden is often a matter of necessity, but where space is at command the plants are best in bold groups and far enough apart to keep the kinds distinct. The depth of water may vary from a foot to as much as 7 feet, but only the strongest kinds will thrive in water as deep as this. The flowers vary as to opening and closing, and while on bright days they mostly fold away about four in the afternoon, on dark days they sometimes keep open until evening. But it is, perhaps, after a sharp shower, when leaves and flower-cups are thickly set with diamond drops, that the water garden is at its best. If the fading flowers and damaged leaves can be removed from day to day (by the help of a flower-cutter and long-handled rake), the flower season will be longer, but this cannot well be done save in small tanks. As soon as they open, the flowers may be arranged very prettily in shallow bowls, lasting fresh for several days and fragrant. If care is taken to bend back the sepals when the flowers are cut, the blooms remain open until they wither.

INCREASE.—Though some of the finer hybrids make few side crowns and thus increase slowly, others may be freely divided, the offsets being cut away with a bit of the old stem attached. Some kinds—mostly of the *odorata* and *tuberosa* sections — are easily increased from seed, but many kinds are sterile, in others seed is slow in germinating, and the seedlings are so liable to degenerate that this way of increase is not much followed. The flowers sink upon the third day, and, ripening under water, open half-way when mature to allow the seeds to escape. They are at first held together by a mass of jelly-like matter, and float for several hours, and during this time may be skimmed from the surface and sown at once in pans of mud. Care must be taken not to disturb the soil when adding water, and if placed in a warm and sunny corner the seedlings are not long in starting.

PESTS.—Weeds must be kept under, such things as the Water Starwort and Floating Pond Weed giving trouble, the last pest with its brittle roots being especially difficult to get out. In early summer the grubs of the caddis-fly gnaw the young leaves and stems, and water snails so load them with eggs as to cause curling and distortion, but as a rule the plants outgrow these troubles with the warmer days, and have more to fear from rats and water-fowl when in full bloom. In small ponds these may be kept under, but in larger sheets of water they often do harm, gnawing the buds before they open, and even carrying them off to build their nests. Green-fly also appears upon the leaves and flowers above water, and grubs of various kinds attack them, but spraying with a weak solution of quassia will generally clear the emergent leaves and flowers, while a few drops of a mixture of three parts of colza to one

of paraffin will spread over the water and check the foe.

NYMPHÆA ALBA (White Water-Lily).—Found in many parts of our country and throughout Europe to Siberia. The flowers, of 4 to 6 inches across, float upon the water amid rounded leaves of bright green, very variable as to size, and reddish while young.

N. ALBA VAR. CANDIDISSIMA.—A large-flowered form sometimes called the Hampton Court Lily. Its white flowers are broader in petal, coming early and continuing late, and thrust well above the water. Its growth is strong, needing ample space. Leaves of yellow green while young, the leaf-lobes much curved and overlapping. At certain times and in certain soils the sepals are flushed with rose-colour.

N. ALBA VAR. DELICATA.—Flowers flushed with pale rose. *N. alba maxima* large flowers. *N. alba minor*, a small-flowered variety with blooms of great purity, and prettily incurved. *N. alba* var. *plenissima*, a form with large, nearly double flowers. *N. alba* var. *rubra* is a scarce plant, best known as the Swedish Water-Lily, and classed as a form of *alba*, though distinct in its smaller leaves of different shape, slightly rolled inwards at the edges, olive-green above and dull reddish below. The flowers are smaller, fuller, and more refined, with broader and blunter petals. It blooms early, but soon goes to rest. With so short a season it spreads slowly, is averse to removal, and also to hot weather. The flowers vary from pale pink to a deep magenta, deepening towards the centre of the flower and from day to day. Seeds freely, but the seedlings mostly revert, only the tiny slow-growing plants coming true. Syns. *N. Caspary* and *N. sphærocarpa*.

N. ANDREANA. — Bears cup-shaped flowers of brick-red colour shaded with orange, and held well above the water. The leaves are blotched with chestnut-brown, their lobes overlapping, and with such long stalks that they float out far apart. The flowers come so freely that a score or more are sometimes open together on one strong plant.

N. ARC-EN-CIEL.—A distinct hybrid with blending shades of pale salmon streaked with rose, and crimson spotted sepals. The leaves are variegated in white, rose, and shades of green and bronze.

N. ARETHUSA.—A plant of strong growth and very free, coming near *Laydekeri fulgens* in its bright crimson colour, but larger in flower and more robust.

N. ATROPURPUREA.—One of the darkest of all, with very large flowers of deep port-wine colour, with pale yellow stamens and petals incurved at the tips. Of good growth, free, with dark leaves shaded with red on their under surface.

N. AURORA.—So named from its changing tints, which vary from a pale rosy-yellow on opening, to orange or reddish tones on the third day, different plants showing much variation in depth of colour.

N. COLOSSEA.—Very large in leaf and flower, blooming with the earliest and lasting well into the autumn. Leaves rich green above and brown beneath, the fragrant flowers of pale pink, the outer segments of pale olive-green, and pale yellow stamens. Thrives in open water in deep pond mud, even when exposed in large lakes.

N. ELLISIANA.—One of the best, rich in colour and conspicuous at a distance. Large broad-petalled flowers of reddish-crimson with orange-red stamens. A plant of robust growth and free in flower.

N. FRŒBELI.—An improved form of the Swedish Water-Lily raised at Zurich, and of deeper colour and stronger growth. Of good size and fragrant, its flowers are of deep crimson with orange stamens, coming freely to the end of September. It is one of the finest dark kinds, thriving in exposed open water, and effective in the distance.

N. FULVA.—Bears medium-sized star-shaped flowers, curiously incurved at the tips of the petals, and sweetly scented. Its colour is rose upon yellow, with yellow stamens, the red growing deeper towards the centre and brightening with age. Leaves spotted with brown above, and suffused with red beneath.

N. GLADSTONIANA.—Has white flowers of great size, sometimes 8 inches across. They are free from all traces of colour, and stand well above the water on stout stems, the whole plant being of free and open habit. One of the first to bloom in spring, and the last flowers are only cut down by autumn frosts.

N. GLORIOSA.—Bears massive flowers 7 inches across, rich dark red with orange-coloured stamens, and fragrant. Being slow to spread and difficult of increase, it should be left for several years undisturbed, and while of strong growth, it sometimes dies off suddenly. The flowers are very full, and floating, the lower petals often prettily tipped with rosy-white during the heat of summer, becoming deeper and more uniform towards the autumn. This is the only kind always bearing five sepals.

N. JAMES BRYDON.—A distinct sort with flowers of 4 to 6 inches wide, of a soft rose-crimson; petals finely rounded and curving inwards, with a paler, silvery sheen beneath, and stamens of bright orange. An excellent kind, quite hardy.

N. LAYDEKERI FULGENS.—A flower of fine colour and cupped, the rounded petals of crimson-purple showing paler within and enclosing a cluster of vivid red stamens.

Like all of this group, it is a good plant for tanks.

N. LAYDEKERI LILACEA.—Very free in its small flowers of soft rosy-lilac tipped with clear pink, their colour deepening to rosy-crimson on the third day. They are held well above the water, shining with an almost silvery lustre in bright sunlight, and scented like a tea-rose. The plant does best in shallow water, and is one of the earliest to show flower.

N. LAYDEKERI PURPURATA.—A telling flower, larger than others in this group, and very shapely with its long pointed petals. They are early, free, and fragrant, of a conspicuous shade of wine-red with orange-red stamens.

N. LAYDEKERI ROSEA.—One of the most useful of hardy Water-Lilies, with fragrant, pale pink flowers, passing through several shades to deep rose as they fade away. It does best in shallow water and gives so few offsets that several plants should be grouped to secure the full effect of the changing flowers.

N. LUCIDA.—With massive flowers opening starwise and rosy-vermilion in colour, paling towards the edges and the tips of the petals and deepening towards the cluster of orange stamens. The leaves, borne upon very long stems, are bold and finely blotched with chestnut-red above and reddish streaks beneath.

N. MARLIACEA ALBIDA.—A superb plant, thriving in deep water, where it should be sometimes thinned to avoid overcrowding; its massive white flowers, of 8 or more inches across, are pushed well above the water, and last into October. They are of glistening purity, fragrant, and very full of petals guarding the cluster of golden anthers. The guard petals are long and broad, but inside they grow shorter and narrower towards the centre. In large groups its general effect is fine.

N. MARL. CARNEA.—A noble hardy plant, in colour a soft flesh-pink, deepening towards the base of the petals and paling gradually to white. It grows well in shallow or deep water, flowering late, and showing its vanilla-scented flowers well above the dark leaves.

N. MARL. CHROMATELLA.—The first yellow kind sent out, a free and fine plant, but apt to get crowded, and when this happens it does not flower so well. Being vigorous, it is a good plant for deep open water, where its large flowers of canary-yellow show finely against the dark brown leaves, and remain open for a long while each day.

N. MARL. FLAMMEA.—A handsome, though inaptly named, flower of medium size, being a deep wine-red rather than flame-colour, with red stamens and petals flaked with white towards the tips. Leaves streaked with reddish-brown.

N. MARL. IGNEA.—One of the brightest in its uniform carmine-red, deepening slightly towards the crown of vivid orange-red stamens; sepals pale olive-green edged with rose beneath, and paler above. Though not large, the flowers are good in colour, composed of eighteen cupped and shapely petals.

N. MARL. ROSEA.—Another stout grower, thriving in deep water, to which its long slender stems are suited. Flowers rose colour, changing to flesh-pink, broader in petal and fuller than in *M. carnea*, with the colour deepening towards the tips. Young leaves purplish-red, changing to deep green.

N. ODORATA.—The white American Pond-Lily, common in the eastern States and with all the beauty of our own, and fragrant. It varies much in size and colour, and, being of moderate growth, is well suited to tanks. The leaf may be anything from 5 to 10 inches across, nearly round, and purplish when young, changing to pure green and reddish beneath. Flowers of 3 to 5 inches, composed of narrow pointed petals, long in the bud.

N. ODORATA CAROLINIANA.—The leaves are green above and red beneath, and though nearly a foot across when fully grown, the plant is only of moderate growth and not too vigorous for a tank. Though easily divided, the plant is best left alone for several years, gaining in size of flowers, which become 6 or more inches across, composed of very narrow pale pink petals, deepening in colour towards the centre. The flowers vary through several shades of colour, according to soil and climate, the following varieties being fairly constant:—*nivea*, with very double pure white flowers, narrow petals and rich yellow stamens; *perfecta*, with semi-double flowers of the small narrow petals, but more rounded at the tip and deep flesh or salmon in colour; and *salmonea*, a strong form with flowers of decided salmon-pink.

N. ODORATA EXQUISITA.—Finely-shaped rosy-carmine flowers of medium size, with narrow, pointed petals and golden stamens; they are the darkest of this group, and stand well out of the water. Leaves green above and intense red below.

N. ODORATA GIGANTEA.—The larger southern form of *odorata*, found from N. Carolina to Florida, and known as the Rice-field Water-Lily. It is of great vigour, delighting in deep water and flowering early in the season, but not in the autumn. The leaves are very large, sometimes measuring as much as 16 inches across, and dark green tinged with purple towards the edges, which are often partly rolled inwards. The flowers—4 to 7 inches across—are pure white with green sepals, slightly incurved, and nearly scentless.

N. ODORATA MINOR.—A pretty little plant of slow growth, and one of the best for tanks and shallow water. The starry white flowers are 2 to 3 inches across, with purplish sepals and sweetly scented, though forms occur that are almost without scent, and others with flowers more or less incurved. The leaves are small, bright green above, and deep red beneath. A native of the shallow bogs of New Jersey.

N. ODORATA ROSEA.—The Cape Cod Water-Lily—a plant of moderate vigour, with petals of a uniform bright rose colour with yellow stamens, and fragrant. It begins early, and seeds so freely that (unless the dead flowers are kept cut) its season is short. The flowers also lose colour quickly when fully expanded, and will sometimes burn in hot sunlight. Leaves rather small, deep red on both sides while young, becoming dark green. Massachusetts.

N. ODORATA SULPHUREA.—A beautiful plant, distinct from all other kinds in the cactus-shape of its flowers. It is a plant of strong growth, forming many crowns and a profusion of clear yellow vanilla-scented flowers, from July into the autumn. Though not much above medium size, they are conspicuous, rising well out of the water, and the long pointed buds open early in the day. The leaves rest on the water unless crowded, and are evenly rounded, and finely blotched and marbled. It is slow in starting to flower, hardly beginning until July.

N. O. SULPHUREA GRANDIFLORA.—A fine form, with the same starry cactus-shaped flowers, but much larger, fuller, and of paler yellow. Though its parent is one of the latest, this kind is the first in bloom and bears the largest flower, opening out very flat, with narrow, crowded petals of elegant effect. It is free in flower when well established, and makes many crowns, with bold foliage of paler green, less mottled above, but covered beneath with reddish blotches.

N. ROBINSONI.—A star-like flower of distinct colour, a reddish-purple deepening towards the centre, which shows traces of an orange ground, paling again towards the tips of the petals. The flowers are of medium size, with pointed and sharply tapering petals, and they last longer than almost any other kind when open. Leaf dark green, blotched with chestnut above and on the stems, and reddish below.

N. TETRAGONA.—The smallest of Water-Lilies, with little flowers 1½ to 2½ inches across and pure white with yellow stamens, opening for three or four days from noon till about 5 P.M. The leaf is as large as the palm of the hand, and shaped almost like a horse-shoe, with the lobes wide apart; coloured dark green above and reddish below. This kind and its forms thrive well in tanks, forming no offsets and spreading slowly, though free to flower from May to the end of September. It is grown from seed. N. Asia and parts of N. America.

N. TETRAGONA VAR. HELVOLA.—A seedling with pale yellow flowers 2 inches across, open during the afternoon and slightly raised above the water. The leaf is oval and yet smaller than in the parent, and freely blotched with brown. It thrives in shallow water with a long season of flower, while a dozen or more blooms may often be counted at once upon a strong plant. In hot sunlight they sometimes come flushed with rose.

N. TUBEROSA.—The vigorous Water-Lily of the United States, thriving in deep water, lifting its flowers high out of the water, and spreading rapidly by long tuberous offsets. It should, therefore, be planted by itself in deep water, but only flowers freely under a warm sky or in hot summers. They are creamy white, without a trace of colour in the sepals or petals, which are longer and broader than in any other wild kind, and scentless. They vary from 4½ to nearly 9 inches across, and bear larger seeds than any other kind.

N. TUBEROSA VAR. MAXIMA.—A form found in Lake Hopatkong, New Jersey, growing in deep water, and supposed to be a wild cross between *tuberosa* and *odorata*. It is of smaller growth and blooms later than the parent, with cup-shaped pure white flowers, prettily shaded with green upon the outer petals. The flower-stalks bear long hairs and a few faint brown streaks.

N. TUBEROSA VAR. RICHARDSONI.—An American seedling with double pure white flowers standing well out of the water; they are of finely rounded petals, curving inwards, the outer row and the sepals slightly drooping. Its subdued growth and distinct globe-shaped flowers make it one of the most distinct of white Water-Lilies.

N. TUBEROSA VAR. ROSEA.—A supposed natural cross with the rosy Cape Cod Water-Lily. It is nearly as vigorous as its parent, with large pink flowers rising above the water, and opening widely to show the crown of bright red stamens. A good plant for deep water.

N. WILLIAM DOOGUE.—An American hybrid with large flowers of soft pink, very broad in petal, much cupped, and evenly coloured throughout. A charming plant and quite hardy.

N. WILLIAM FALCONER.—A flower of striking colour, one of the best dark Water-Lilies. The blooms are large (6 or 7 inches) and deep crimson, shaded with purple, and yellow in the centre. The young leaves are bright red, changing to deep green, with veins of reddish purple.

M. Latour Marliac sends me a list of the newest varieties of these beautiful plants of his raising :—Escarboucle, Gloire du Temple-sur-Lot, Indiana, Marguerite Laplace, Newton, Mrs Richmond, Sirius, Sylphida.

NYSSA (*Tupelo Tree*).—A small group of trees little planted, but having certain good qualities. One of the most brilliant sights I remember was a Tupelo tree at Strathsfieldsaye in Hampshire in autumn—a tall slender tree, in splendid colour of leaf. The trees are mostly natives of N.E. America, a very cold country, so that there can be no doubt about their hardiness; and the fact that they grow in swampy places should make them easy to find a place in this river and estuary veined land.

N. AQUATICA (*Tupelo Gum*) rises sometimes to a height of 100 feet, and is rather of southern and western distribution. The two first-named species are the most important for our country.

N. BIFLORA (*Water Tupelo*) is a somewhat smaller swamp and waterside tree, of N. Jersey and southwards.

N. SYLVATICA (*Sour Gum*) is the Tupelo, a tree over 100 feet high in deep swampy ground in Maine and Canada, southwards and westwards.

ŒNOTHERA (*Evening Primrose*).—These are amongst the prettiest of hardy flowers, and are easily grown in all soils. From June onward they are in their beauty. They have large bright yellow or white flowers, in many kinds freely borne. Their name notwithstanding, many are open by day; as for instance, *Œ. linearis, speciosa, taraxacifolia,* and *trichocalyx*. Many of the finest Evening Primroses are natives of States west of Mississippi, such as California, Utah, Missouri, and Texas. They all bloom the first season from early seedlings. Some of the true perennials, and particularly the prostrate ones, are shy seeders, but the tall ones seed freely. Sowing themselves freely, they are apt to become too numerous and somewhat "starved," so that they are best grown in large groups. Amongst them we have tall erect sorts like *Œ. Lamarckiana*, prostrate, as in *trichocalyx* and *cæspitosa*, and white flowers, as in the two last named, while *coronopifolia* and *speciosa* often change with age to pink or rose. Few plants have finer yellow blooms than *missouriensis*; and, moreover, they are very large—4 to 6 inches across. Nearly all are more or less fragrant, particularly *cæspitosa, marginata, fragrans,* and *eximia*.

Œ. BIENNIS.—A handsome biennial, 3 to 5 feet high, with large bright yellow flowers. Its variety *grandiflora* or *Lamarckiana* should always be preferred to the ordinary kind, as the flowers are larger and of a finer colour, having a fine effect in large masses, and it is well suited for the wild garden.

Œ. FRUTICOSA (Sundrops).—This and its varieties are amongst the finest of hardy perennials, 1 to 3 feet high, with showy yellow blossoms. There are about half a dozen distinct varieties, the best

Œnothera marginata.

being *linearis*, or, as it is usually called, *riparia*, about 1½ feet high, bearing an abundance of yellow blossoms. It is always prudent to lift a few or strike a potful of cuttings in case of accident, though in spring the old plants may be divided to any extent. Given sandy loam, these plants thrive in borders or in the margins of shrubberies. N. America.

Œ. GLAUCA.—A handsome N. American species similar to *fruticosa*. It is of subshrubby growth, becomes bushy, and bears yellow flowers. The variety *Fraseri* is a still finer plant, and where an attractive mass of yellow is desired through the summer there are few hardy plants of easy cultivation so effective. In a large rock garden a few plants here and there

give good colour, and the plants bloom long.

Œ. MARGINATA.—A dwarf plant with flowers in May, 4 to 5 inches across, from white gradually changing to a delicate rose; as evening approaches, coming well above the jagged leaves, retaining their beauty all night, and emitting a Magnolia-like odour. It is a hardy perennial, and is increased by suckers from the roots and by cuttings, which root readily. It is excellent for the rock garden and for borders. *Œ. trichocalyx*, a similar species, but probably only an annual, is a beautiful plant well worth growing.

An Evening Primrose (*Œnothera Lamarckiana*).

Œ. MISSOURIENSIS (Prairie Evening Primrose).—A precious herbaceous plant from N. America, with prostrate downy stems and clear yellow flowers, sometimes 5 inches in diameter, and borne freely. There is no more valuable border flower, and when well placed in the rock garden it is effective, especially if the luxuriant shoots are allowed to hang down. I plant it as an undergrowth to a tea-rose. As a border plant it does not grow so freely in cold clayey soils as in warm soils. The blooms open best in the evening.

Œ. ROSEA (Rosy Evening Primrose).—There are several forms of this name quite worthless, but there is also a very beautiful perennial rosy form, which seems to show that the plant may vary a good deal in its native country. The one I have found so useful is less than 1 foot high and of easy propagation and culture in ordinary soil.

Œ. SPECIOSA.—A handsome plant, with many large flowers, at first white, changing to a delicate rose. The plant is erect and its stems almost shrubby, 14 to 18 inches high. A true perennial, valuable for borders, or the rougher parts of the rock garden in good loam. It is a native of N. America, and is increased by division, cuttings, or seeds, but does not seed freely in this country. Its variety, *rosea*, is also to be recommended.

Œ. TARAXACIFOLIA (Chilian Evening Primrose).—One of the finest, of a low trailing growth and large blossoms, which attain their full size towards evening. It has a fine effect in rich deep soil in the rock garden, where its trailing stems can droop over the ledge of a block of stone. The flowers, 2½ to 3½ inches across, are pure white, changing to a delicate pink.

Œ. TRILOBA.—A handsome hardy annual species, dwarf, with large and showy yellow blossoms. Other showy annuals are *Œ. sinuata* and its variety *maxima*, *Œ. macrantha*, *odorata*, *bistorta*, *Veitchiana*, and *Drummondi*. These are all worthy of culture, requiring the treatment of half-hardy annuals, and ordinary garden soil.

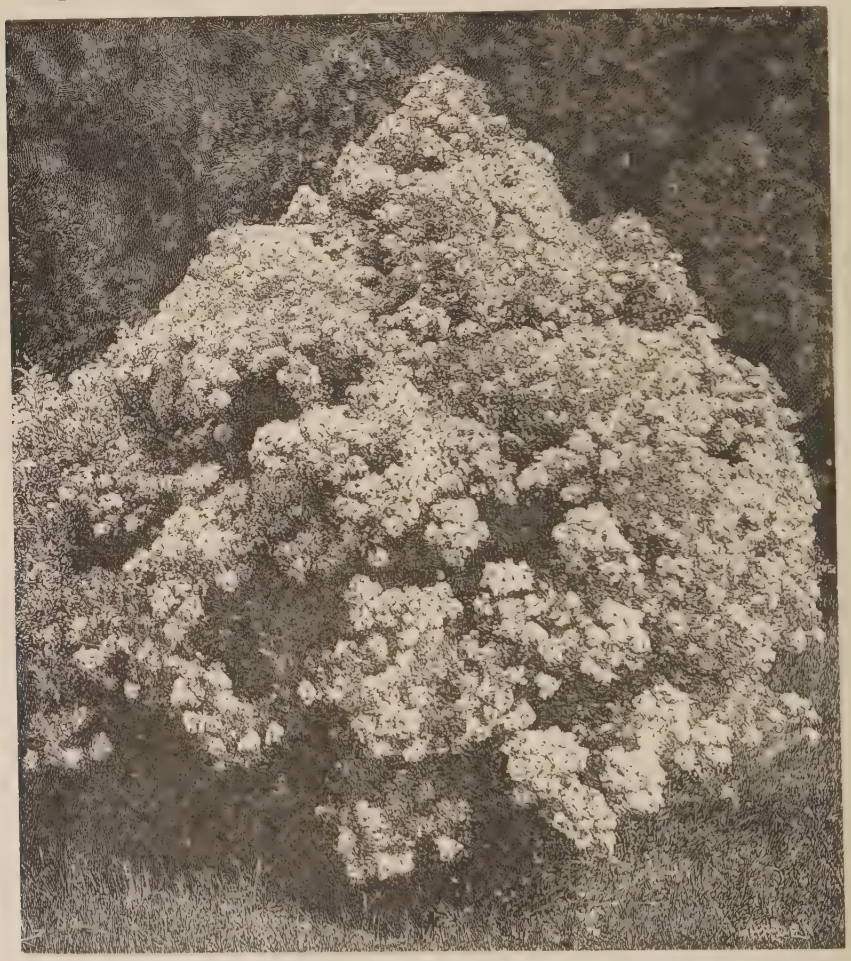
OLEARIA (*Daisy Trees*).—Pretty evergreen bushes, natives of Australia and New Zealand. Their only fault is in not proving really hardy, except in warm localities in the southern counties. They may exist in other districts, but gardens are none the better for the presence of shrubs not really hardy in them, or perhaps in a half-dead or flowerless state, or requiring protection, which has a tendency to make gardens needlessly ugly for half the year.

O. AVICENÆFOLIA is more remarkable for the beautiful under side of its leaves than its flowers, these borne in corymbs about 4 to 6 inches across, dull white, the leaves being coated on the under side with a deep coppery brown, which makes the bushes most attractive, even in rough weather.

O. INSIGNIS.—The plant is dwarf, branched, the branches as thick as the little finger; the leaves from 3 to 5 inches long, 2 inches broad, rounded at the ends, thick and hard, shining green on the upper surface. With this exception the whole plant is covered with a thick, felt-like coating of pale brownish tomentum. The flowers are on erect peduncles, which are as thick as a goose-quill and

from 6 to 9 inches long; the flower-heads are a little over 2 inches across; remaining fresh on the plant for about six weeks. This plant is one of the most interesting and prettiest of the composites which are found in New Zealand. It is a native of Middle Island, where it is said to grow on the driest rocks.

O. HAASTI.—This is pretty hardy in various parts of England, growing to a large size in the more favoured localities, and if planted in groups it has a good effect when covered with its Aster-like flowers, and even out of bloom it is attractive. In New Zealand, where it is found at altitudes of about 4,000 feet, it forms a small shrubby tree. The flowers are very numerous, in terminal corymbs, the ray florets ¼ inch long, white, the disc yellow. The plants usually bloom in August, and remain in perfection several weeks. Other kinds grown against walls and on warm soils with some success are *ramulosa, ilicifolia, myrsinoides, nitida, macrodonta, stellulata, Traversi, Gunniana, dentata, argophylla, insignis, Fosteri.*



Olearia Haasti.

OMPHALODES (*Navelwort*).—Pretty dwarf rock or mountain plants belonging to the Borage order.

O. CAPPADOCICA.—A new and brilliant addition that should be grown by all. The plant is vigorous habited, forming foot-high mounds crowded with rich gentian-blue flowers like a glorified Forget-me-Not. Delights in cool loam. A most beautiful and amiable plant, flowering in spring.

O. LINIFOLIA.—A distinct Portuguese hardy annual, 9 to 12 inches high, with glaucous-green leaves and pure white flowers from June to August; it may be

grown in ordinary soil, the seeds sown in April or in September and October; the plant often sows itself.

O. Luciliæ.—A lovely rock plant, with flowers a pretty lilac-blue, and glaucous grey foliage. It is hardy, and succeeds in the rock garden, but the soil must be thoroughly drained, for though the plant requires abundance of water during growth, it suffers from stagnant moisture.

Omphalodes Luciliæ.

To protect it against slugs, which are too fond of it, strips of perforated zinc, about 3 inches wide, bent so as to form rings round the plants, are used. It is best increased by seeds, and may be cultivated with success in the moraine, and grows well in sandy loam and peat. Asia Minor.

O. verna (Creeping Forget-me-Not).—A pretty hardy plant, bearing in early spring handsome flowers of a deep clear blue with white throats. The plant is useful for borders and the rock and spring garden: no plant is more worthy of naturalisation; in cool, thin woods it runs about like a native plant, and in any position is one of the prettiest plants. There is a white variety, not so pretty as the blue.

ONOCLEA (*Sensitive Fern*). — *O. sensibilis* belongs to the group known as "flowering Ferns," from the fertile frond being contracted so as to give it the appearance of an unopened spike of flowers. The fronds are a beautiful fresh green, especially in spring. Though not very fastidious as to soil, it succeeds best in a cool and moist situation, such as the base of the rock garden, or in the American garden, especially if a little sheltered by neighbouring plants. If the fronds are allowed to remain on the plants until they appear to be ripe, it will be found that the spore-cases are open and the spores shed, as they drop while the fronds look quite green, therefore the best way is to cut off the frond as soon as indications of bursting are perceived, and to lay it on a sheet of paper for a few days, when all the spores will drop out. N. America.

ONONIS (*Rest Harrow*). — Hardy plants of the Pea family, of which the wild Liquorice (*O. arvensis*) is one of the prettiest of our wild plants, and is worthy of cultivation on banks and in the rough rock garden, forming dense tufts covered in summer with racemes of pink flowers. It is distinct from the spiny *O. campestris*, which has stems nearly 2 feet high, and sometimes more. *O. rotundifolia* is a distinct and pretty plant, which is hardy, and easily cultivated, flowering in May and June and through the summer; it attains a height of 12 to 20 inches according to soil, and is suitable for the mixed border of the rougher parts of the rock garden. Seeds or division. Pyrenees and Alps. These are the best of about half a dozen garden species, which also include *O. fruticosa, Natrix, viscosa* and *aragonenis*.

ONOPORDON (*Cotton Thistle*). — Handsome vigorous Thistle-like plants mostly biennial, and valuable for their stately port and showy flowers. They thrive in exposed places and among shrubs in sheltered ones, and may be effectively used in a variety of ways. Moderation in their use, however, is desirable, as in some situations they seed so freely as to require judicious keeping down. *O. Acanthium* (Down Thistle) is a bold and vigorous native plant, with very large, stout branching stems, often more than 5 feet high, covered with long, whitish web-like hairs, and bearing large heads of purplish flowers. The habit of *O. illyricum* is more branching, the leaves and stems are much more spiny, the stems are stiffer and the leaves are greener and more deeply cut. *O. arabicum* is 8 to 10 feet high, is erect and very slightly branching, and both

sides of the leaves, as well as the stems, are covered with white down. *O. græcum* is also a handsome plant.

ONOSMA (*Golden Drop*).—*O. taurica* is an evergreen perennial, 6 to 12 inches high, soon forming dense tufts, and bearing in summer drooping clusters of clear yellow almond-scented blossoms. The best place for it is the rock garden in a sunny position, drained, with a good depth of soil, so that the plants may root strongly between the stones, the soil a good sandy loam, mixed with broken grit. It is impatient of disturbance and abhors rich soils. Seeds are rarely

Onosma taurica (Golden Drop).

if ever produced in this country. Cuttings, if secured with a heel attached when quite young and inserted without further ado in sandy soil in a handlight, root freely in early summer. Greece. *O. albo-roseum* from Asia Minor, and *O. Bourgæi* from Armenia, are characterised by woolly leaves and are dwarfer habited. Their larger drooping flowers are coloured rose and white. All respond to the same method of increase and similar conditions of cultivation. They are among the choicest of alpine flowers.

OPHIOGLOSSUM (*Adder's-tongue*).—*O. vulgatum* is a native Fern not often seen in gardens; found in moist meadows; and the best position for it therefore is in colonies in the hardy fernery or the moist stiff soil in the rock garden. *O. lusitanicum*, a dwarf variety, is interesting, but capricious and difficult to cultivate.

OPHIOPOGON (*Snake's-beard*).—Herbaceous perennials, about 1½ feet high, the flowers, usually small, lilac, appearing late in summer and in autumn in spikes, 2 to 5 inches long, rising from grassy tufts of evergreen foliage. They thrive in borders or margins of shrubberies in sandy loam, but are scarcely ornamental. *O. japonicus*, *Jaburan*, *spicatus*, *Muscari*, and *longifolius* are the best known, and usually in botanical collections. In Italy they are used to form green turf, in lieu of grass, which perishes from the heat. Division. Japan and India.

OPHRYS.—Small terrestrial Orchids, singularly beautiful, and among the most curious of plants. Many have been in cultivation, but these being tender plants, chiefly from S. Europe, they must have protection, and require much attention. A few native species, however, can be grown in gardens, and of these one of the most singularly beautiful is the Bee Orchis (*O. apifera*). This varies from 6 inches to more than 1 foot in height; it has a few glaucous leaves near the ground; flowers in early summer, the lip of a rich velvety brown with yellow markings, bearing a fanciful resemblance to a bee. It is usually considered difficult to grow, but it may be easily kept on dry banks in the rock garden in a firm bed of calcareous soil, or of loam mixed with broken limestone. It thrives best if the soil be surfaced with some very dwarf plant, or with an inch of cocoa-fibre and sand, so as to keep it moist and compact about the plants. Other interesting species for a collection of hardy Orchids are *O. muscifera* (Fly Orchis), *arachnites* and *aranifera* (Spider Orchis).

ORCHIS.—These terrestrial Orchids are beautiful, and well worth cultivation among hardy flowers. For those who do not want a full collection the species mentioned below are easily grown if placed under good conditions at first. Some of our native Orchids are worth a place, but few succeed with them, chiefly because the plants are transplanted at the wrong season. The usual plan is to transplant just when the flowers are opening, but at this period of growth the plant is forming a tuber for the following year, and if this is in any way injured it dies. If, instead, the plants are marked when in flower and allowed to remain until August or September, when the tubers are matured, the

risk of transplanting is lessened, provided the plant be taken up with a deep sod. The ground where the plants grow may be surfaced with such plants as the Balearic Sandwort, Lawn Pearlwort, and the mossy Saxifrages. The situation for Orchids should be an open one, and the soil a deep, fibry loam in a drained border. The following are the kinds most worthy of culture :—

Orchis foliosa (Madeira Orchis).

O. FOLIOSA.—A handsome Orchid, one of the finest of the hardy kinds, 2 feet or more in height, with long spikes of rosy-purple blossoms in May, lasting long in bloom. It delights in moist nooks at the base of the rock garden, though quite happy in deep light soil. Plant in early autumn. Madeira.

O. LATIFOLIA (Marsh Orchis).—A fine native kind, 1 to 1½ feet high, with long spikes of purple flowers in early summer. It thrives in damp boggy soil, in peat or leaf-mould. There are several beautiful varieties, the best being *præcox* and *sesquipedalis ;* the last being one of the finest of hardy Orchids, about 1½ feet high, and a third of the stem is covered with purplish-violet flowers.

O. LAXIFLORA.—A pretty species, 1 foot to 18 inches high, with loose spikes of rich purplish-red flowers, opening in May and June, and thriving in a moist spot in the rock garden. Guernsey and Jersey. Division.

O. MACULATA (Hand Orchis).—One of the handsomest of British Orchids, finest in rich soil, and if well grown in moist and rather stiff garden loam its beauty will surprise even those who know it well in a wild state. The variety *superba* is a fine plant, and should be secured.

Other beautiful kinds, but more or less difficult to establish in gardens, are *O. papilionacea, purpurea, militaris, mascula, pyramidalis, spectabilis, tephrosanthos,* and *Robertiana.*

OREOCOME CANDOLLII. — An effective plant of the Fennel order for the margins of shrubberies, or groups of fine-leaved hardy plants. It grows 5 feet in height, with large leaves finely divided, of a fresh green colour, and the flowers, which rise well above the foliage, are in umbels, and white. It grows well in any ordinary garden soil, and is quite hardy. Himalayas.

ORIGANUM (*Dittany, Hop Plant*).—*O. Dictamnus* (*Dittany of Crete*) is a pretty plant, somewhat tender, and best grown under glass rather than in the open air, though during mild winters it may survive. It has mottled downy foliage, and small purplish flowers, in heads like the Hop, hence the name Hop-plant. *O. Sipyleum* is similar, and is quite as pretty. In the open air these plants should have a warm spot in the rock garden.

ORIXA JAPONICA.—A very interesting summer-leafing shrub of graceful habit. Native of China and Japan. Mr Wilson, who saw them in China, says they have the curious and interesting faculty, when ripe, of shooting out the seed at a distance of several feet. Mr W. J. Bean (*Trees and Shrubs*) has seen the shrub at Kew, but nowhere else. He says the leaves have a pleasant spicy odour when crushed. The shrub is largely used by the Japanese as a hedge plant.

ORNITHOGALUM (*Star of Bethlehem*).—Bulbous plants, some of them handsome, others not very distinct, but all useful in the grass and in borders, in any good garden soil—one or two kinds among the hardy species important for choice borders and bulb beds, *i.e., pyramidale* and *latifolium.* Among other kinds worth growing are *nutans* (free in grass), *narbonnense, sororium, exscapum,* and *umbellatum*—natives mostly of S. Europe, N. Africa, and Asia Minor.

OROBUS (*Bitter Vetch*).—Often pretty plants of the Pea order, flowering usually in spring. They are suitable for the mixed border, for the rock garden, or for naturalising.

O. AURANTIUS.—A handsome plant, 18 to 24 inches high, with orange-yellow flowers in early summer. *O. tauricus* is a nearly-allied species, also with orange flowers. Both require to be well established before they bloom freely.

O. LATHYROIDES.—A lovely border plant, 18 to 24 inches high; its bright blue flowers borne in dense racemes; increased freely by seeds, and thrives in ordinary soil.

O. VERNUS (Spring Bitter Vetch).—One of the most charming of border flowers. From black roots spring healthy tufts of leaves with two or three pairs of shining leaflets; the flower-buds appearing soon afterwards, almost covering the plant with beautiful purple and blue blooms in April. There are varieties of which *cyaneus* is the most attractive, with its larger flowers and strange intermixture of colours.

ORONTIUM (*Golden Club*).—*O. aquaticum* is an interesting perennial of the Arum family, 12 to 18 inches high; in early summer its narrow spadix is densely covered with yellow flowers. The plant may be grown on the margins of ponds and fountain-basins, or in the wettest part of the bog garden. N. America.

OSMANTHUS. — Handsome evergreen shrubs, few hardy in our islands; but some of these are of value :—

O. AQUIFOLIUM.—Botanically all forms of the Osmanthus in Britain are of this species. They can scarcely be called varieties, for it is not unusual to see a plant with two so-called varieties on one branch. For convenience, however, and especially as they keep true to character in the majority of instances, the common nursery names are given here. *O. aquifolium* is a native of China and Japan. In some of its forms it is curiously like the Holly, and is frequently mistaken for it, but it is of looser growth and less thickly furnished with leaves, and is of dwarfer and more shrubby habit. The generally accepted typical form of this species is the one with the largest and broadest leaves. In this the leaves are 3 to 4 inches long, of oblong or oval shape, pointed or toothed, but not so deeply as the smaller-leaved forms known as *ilicifolius.* They are a deep green colour and very firm texture. This plant is, according to my experience, the least hardy of this set. It flowers in autumn, and the blossoms are fragrant.

O. DELAVAYI.—A charming species from Yunnan, China, which will be welcome

should it prove generally hardy. An evergreen reaching 4 to 6 feet high, the branches freely furnished with dark leathery, glossy, small green leaves, which, with its terminal clusters of white Bouvardia-like fragrant flowers, distinguishes it from all the other species of the genus. Light loamy soils in warm well-drained situations.

O. ILICIFOLIUS.—This is by far the most common and useful kind, and is, moreover, a valuable shrub for town planting. The leaves are usually much smaller than those of the plant just described, and may be easily recognised by their deep lobing. The largest specimen at Kew is 9 feet high, with a spreading base and foliage of the deepest and glossiest green. The leaves average 1½ inches to 2 inches in length, and are cut half-way to the midrib into several sharply-pointed lobes. Some of them are quite entire, others lobed on one side only, but most of them have the upper half lobed, the lower half entire.

O. PURPURASCENS.—The young leaves of this variety are tinged with purple, especially on the under side. It is undoubtedly the best of all the Osmanthuses for outdoor work, being much hardier than the variegated forms. At Kew there is a group of this purple-leaved variety near the Palm House, amongst which is planted *Lilium candidum*, and nothing could more happily set off the beauty of this Lily.

O. MYRTIFOLIUS.—There is this Osmanthus at Kew, the lower part of which is *ilicifolius*, the upper part *myrtifolius*. It appears, however, to be itself constant, and when grown on its own roots I have never noticed any reversion. It makes a neat bush, with leaves like those of the Myrtle in shape, but larger and firmer in texture.

O. ROTUNDIFOLIUS.—This is the dwarfest and one of the most distinct. Its leaves are very stiff and leathery, and distinguish the variety by their more or less obovate outline. The margins are not distinctly serrated, but have a very shallow irregular lobing.

The Osmanthuses may all be propagated by cuttings, and although it takes longer to obtain plants on their own roots they are much to be preferred to those grafted on the Privet. Cuttings should be taken in August when the wood has become firm, and they may be struck in a cool propagating frame.—W. J. B.

OSMUNDA (*Royal Fern*).—So-called "flowering" Ferns made familiar by our native Royal Fern (*O. regalis*), which is found in many bogs and marshy woods, and is well worth cultivating, as it is the largest and most striking of our native Ferns, sometimes attaining a height of 8 feet. It should be planted in moist peaty soil, and the most suitable spots are half-shady places on the banks of streams or of pieces of water. When exposed to the full sun it does well, with its roots in a constantly moist, porous, moss-covered soil, if sheltered from strong winds. In shady positions and in deep bog soil it attains a great size. A gross feeder, revelling in richly manured soils.

The various N. American Osmundas may be associated with it. *O. cinnamomea* is an elegant N. American Fern with pale green fronds; the variety *angustata* is smaller, and the fronds are less inclined to droop. This species, like *O. regalis*, is deciduous. *O. Claytoniana* is another deciduous species, and has vivid green fronds, 2 to 3 feet high. *O. interrupta* is the same. *O. gracilis* is a native of Canada, somewhat resembling a dwarf form of our Royal Fern, the fronds about 2 feet high. *O. spectabilis* is a slender form of *O. regalis*; its fronds are smaller, and the young ones come up reddish-purple. These exotic species are of the simplest culture in the hardy fernery, in moist peaty soil. N. America.

OSTROWSKYA (*Great Oriental Bellflower*).—*O. magnifica* is a remarkable

Ostrowskya magnifica.

and handsome hardy plant found by Dr Regel on the higher mountains of Chanat Darwas, in E. Bokhara, and

is like a huge Platycodon in aspect, but distinct, the flowers being of great beauty, 4 to 6 inches across, of a delicate purple, veined, and varying from seed; the leaves are in whorls. The plants like a deep sandy loam, as the carrot-like roots when of full size go down to a depth of 2 feet. They must be carefully handled, as they are very brittle. The *Ostrowskya* does not apparently thrive equally in all places, and is often disappointing. Seeds germinate readily in a cold frame, but a few years elapse between sowing and flowering. Unique among perennials, it is worthy of any care to make it a success. Plant year-old seedlings where disturbance is unnecessary.

OSTRYA (*Hop Hornbeam*).—According to Mr Bean one is a species common to Europe and Asia Minor, another is of E. Asia, and there is one in western and one in eastern N. America. They are summer-leafing and should be raised from seed; they thrive in any soil of good or moderate quality, and are all perfectly hardy.

OTHONNOPSIS (*Barbary Ragwort*).—*O. cheirifolia* is a distinct Composite plant, with whitish-green tufts, 8 inches to 1 foot high, or on rich soils perhaps more. It is a spreading evergreen, flowering sparsely on heavy and cold soil, but on light soils often blooming freely in May; the flowers yellow, about 1½ inches across, but not pretty. It is useful from its distinct aspect on the rough rock garden or in the mixed border. Cuttings. Perishes in severe winters; at least on clay soils. Barbary.

OURISIA.—*O. coccinea* is a bright dwarf Chilian creeper, bearing in early summer scarlet blossoms in slender clusters, 6 to 9 inches high. For years this brilliant subject was reputedly difficult to grow. Experience proves, however, that it revels in cool rich loam and leaf soil, and flowers profusely when with these are associated broken sandstone, over which the rhizomes creep and flower. On no account should the rhizomes be buried. Keep them level with the surface. As it forms a perfect mat, it should be divided and replanted every two years.

OXALIS (*Wood Sorrel*).—Dwarf and often pretty perennial or annual plants, for the most part more happy and free in temperate countries, but some hardy with us on warm borders and on the rock garden. They all thrive best in a sandy soil in the warmest and driest place in a garden. The following are the best kinds for our gardens:—

O. ACETOSELLA (Stubwort, Wood Sorrel).—The prettiest of all the kinds known for our gardens is our native Wood Sorrel, which bore in old times the better name of "Stubwort"—a name which should be used always. This grows in such pretty ways in woody and shady places that in many gardens there is no need to cultivate it. Where it must be cultivated it will be happy in the hardy fernery or in shady spots in the rock garden, or under trees, or the lawn, or in any shady or half-shady places in ground not dug.

Oxalis Acetosella.

There are other species worthy of a place, especially on very dry sandy soils, and among them are *O. Smithi, rosea, Deppei, speciosa, arborea, violacea, versicolor, incarnata, tetraphylla, venusta,* and *corniculata.* If a collection, it should be borne in mind that it is very difficult to preserve the correctness of the names, for the minute bulblets become mixed up with the earth, and the elasticity of the seed-pots permits the seeds to scatter in all directions.

O. ADENOPHYLLA.—A very beautiful new species from the Andes rivalling and even eclipsing in beauty the better known *O. Enneaphylla.* The plant is vigorous habited, quite hardy, and grows freely in loamy soils. The flowers are large and coloured rosy-white, and appear in early summer. Rare at present, it is one of the choicest of gems for the rock garden. Height, 4 to 6 inches. Increased by division of the tubers when dormant.

O. BOWIEANA.—A robust species, forming rich masses of leaves, 6 to 9 inches high, and umbels of rose flowers continuously throughout the summer, suitable for warm borders at the foot of a south wall. In cold soils it seldom flowers, but on very sandy, warm, and well-drained soils it

flowers abundantly, and where it does well it is one of the most precious of hardy flowers. Division. Cape of Good Hope.

O. ENNEAPHYLLA. — A lovely plant from the Falkland Islands, producing handsome, pure white, erect, open, bell-shaped flowers from amid pale glaucous green foliage. The plant revels in cool rich loam and leaf-mould, and in such flowers well and increases rapidly. Perfectly hardy and quite amiable. Does not object to thin screening shade. June-July. Increased by tuber division when dormant. *O. e. rosea* is a pretty variety whose flowers are delicately tinted rose.

O. FLORIBUNDA.—A free-flowering kind, hardy in all soils; for months in succession it bears numbers of dark-veined rose-coloured flowers. The white-flowered variety flowers as freely as the rose-coloured form, and both are very useful for the rock garden and for margins of borders, and are easily increased by division. America.

O. LASIANDRA.—A distinct and beautiful kind, with large dark green leaves, and in early summer umbels of bright rose-coloured flowers, and useful for warm borders and the rock garden. Mexico.

O. LOBATA.—A stemless little plant with three deeply-lobed bright green leaflets, and blossoms about ¾ inch across, rich yellow, the centre delicately pencilled with chocolate. A free-flowering bright little plant during sunshine, thriving in warm sandy loam on well-drained borders. Flowers in September-October. Should be planted in the warmest and sunniest position. Chile.

O. LUTEOLA.—One of the prettiest, forming a compact tuft; the flower-buds ½ inch in length, and a soft creamy-yellow, but when open they are as large as a half-crown, and pure white, shading to yellow towards the centre; it is not hardy, but in light sandy soil will survive a winter if protected.

O. MEGALANICA is a creeping plant, quickly forming a mat of pretty leaves and bearing over many weeks a profusion of white flowers about half an inch across and not more than 2 inches above the ground.

OXYDENDRUM (*Sorrel Tree*).—A handsome flowering tree reaching a height of over 50 feet in its native country, with rather large fine leaves and many racemes of white flowers; thriving in our country, at least, on peaty soils, and flowering freely in summer. Ohio and Pennsylvania to Florida, both in mountain and coast lands. The tree is as yet far from common, and the best way at first is to group it with the American shrubs in peaty and free soils. I have planted it in rich leafy soil in most spots in woods, where even small plants so far hold their own among the stoutest sedges.

Ozothamnus rosmarinifolius.

OXYTROPIS.—Plants of the Pea family, nearly allied to Astragalus, the best of which is *O. pyrenaica*, a dwarf species, with pinnate leaves covered with silky down, barely rising above the ground, the flowers a purplish-

lilac, barred with white, and borne in heads of from four to fifteen in early summer. Native of the Pyrenees, rarely in gardens, and increased by seed or division. Plant on well-exposed and bare parts of rock gardens, in firm, sandy, or gravelly soil. *O. Halleri* has charming, compact flowers, of as deep a blue as that of the Gentians, and proves a manageable plant in the rock garden in deep moist loam. *O. uralensis*, a dwarf species from the Ural Mountains, has rosy-blue flowers in compact heads, about 4 inches high. Other kinds are—*O. montana, fœtida, strobilacea, campestris*, and its several varieties; all of these are dwarf, and thrive in sandy loamy soil in open spots in the rock garden.

OZOTHAMNUS. — *O. rosmarinifolius* is a neat little evergreen shrub almost hardy in the south and coast districts, with small, Rosemary-like leaves, and about the end of summer bears dense clusters of small white flowers. It thrives in any light soil, and should be planted in an open sunny spot or on a warm bank. Tasmania.

PACHYSANDRA (*Mountain Spurge*): —*P. procumbens* is a little sub-evergreen plant from the rocky woods of N. America, 6 to 12 inches high, and nearly allied to the Common Box. Its prostrate stems bear deeply toothed leaves of dull green, with small crowded spikes of white or purplish flowers in early spring, when they are much sought by bees. A better plant is *P. terminalis* from Japan. This is a true evergreen, with thick glossy dark green leaves, sometimes variegated, and forms a neat carpet in the rock garden. Both plants are hardy, and mostly do best in a moist spot and in half-shade, though the Japanese kind will also grow in full sunlight. Easily increased by division.

PÆONIA (*Pæony*). — Among the most showy of hardy perennial plants, with much beauty of colour and often fragrance. Though there are several species in collections, the most important are the hybrids obtained by inter-crossing. Pæonies are divided into two groups—the tree or shrubby kinds, comprising the varieties of *P. Moutan;* and the herbaceous kinds. The hybrid sorts have been obtained chiefly from *P. officinalis* and other European kinds, together with the Chinese species *albiflora, sinensis*, and *edulis*. The European varieties flower early and the Chinese late, so that the flowering season is prolonged.

Among the hybrid Pæonias there is much variety of colour—white, pale yellow, salmon, flesh-pink, and numerous intermediate shades from carmine to brightest purple. Among the oldest varieties the most remarkable are—*grandiflora*, double white; Louis Van Houtte, *papaveriflora, rubra triumphans, sulphurea plenissima, rosea superba, Zoé, Mme. Calot, Gloria Patriæ*, and Prince Troubetskoy. The most beautiful of recent date are—Good Single Kinds: Argus, Armida, *Autumnus*, Bridesmaid, Countess of Warwick, Duchess of Sutherland, Emily, Frank Bramley, *Giganteus*, Miss Ida Chamberlain, Mrs J. Gundry, Mrs Templeman, Philip H. Miller, Stanley, The King, The Queen. Double Kinds: Agnes Mar Kelway, Arethusa, Beauté Française, Canarie, Comte de Paris, Coronation, Dean Hole, Dr Bonavia, Duc de Wellington, Duchesse de Nemours, *Edulis superba*, Ella Christine Kelway, Etendard du Grand Homme, *Festiva Maxima*, Glory of Somerset, Henri Demay, Lady Alexandra Duff, Lady Curzon, Leonie, Queen of Roses, Mme. Vilmorin, Monsieur Rousselon, Octavie Demay, Philoméle, *Prolifera tricolor*, Mme. Charming, Mme. Calot, Mme. Charles Leveque, Queen Victoria, Reine des Françaises, Solfatarri Virginie, Souvenir de Gaspar Calot, Triomphe de Paris, Venus. There are many others—for example, the forms of *P. officinalis* (such as *anemonæflora, rubra*, and *Sabini*, and the rosy, crimson, and white double-flowered varieties); also *P. albiflora, peregrina, paradoxa*, and especially the small *P. tenuifolia*, with its feathery foliage and large deep red blossoms. There is a double form of this species, and a variety called *latifolia* with broader foliage, and one of the earliest of Pæonies to flower. Then there is *P. lobata*, with fine single flowers of salmon-scarlet; and *P. corallina*, a native plant, with single reddish-purple flowers followed by handsome pods of red and black seeds. But the most distinct of all is *P. Wittmanniana*, with single pale yellow flowers early in May. Until recently this was the only known Pæony with yellow flowers, and the new *P. lutea* belongs rather to the Tree Pæonies. These, as well as the varieties, are

perfectly hardy, and need no protection against frost, however severe.

A good moist loam, enriched with cow manure, is the soil best suited to Pæonias. The best season for planting is September-October; the earlier the better. New roots are in course of formation at that time, and the plants more quickly become established. In any case the planting should be completed while the crowns remain dormant. To divide and transplant in spring when in growth is fatal to success, equally bad being that of transplanting large specimens intact. These are grave fundamental errors. Plants having three or five plump crowns are by far the best for the planter. Have the ground well prepared by manuring and by trenching to the depth of about 3 feet, and plant them at least 4 feet apart in each direction. They will not flower well before the second or third year. An open position is best. The Pæony revels in the deepest and richest of soils, and once well planted is good for a dozen years without disturbance. When established apply liquid manure in autumn and winter.

Besides their value for the garden proper, there are few plants more fitted for the wild garden; and the most brilliant and one of the boldest things in wild gardening is a group of scarlet Pæonies, or any of the hardy species in meadow grass, in early summer. This may be managed so that they come into the garden landscape, so to say, and are seen at a considerable distance from certain points of view. So placed, they could not be in the way when out of flower, as they sometimes are in the mixed border.

Pæonia lutea.

P. MOUTAN (Tree Pæony).—A noble plant of great beauty for its varieties, which are very numerous. It is hardy, and properly planted requires little care; precious also for borders and for lawns. Its blossoms are gorgeous in early spring, and its young leaves assume every shade of colour, from violet-crimson to green. Tree Pæonies are not particular as to soil or position, they grow and flower well in chalky soils, or those of good sandy loam. *Moutans* are gross feeders, and amply repay generous treatments with occasional top-dressings of half-decomposed cow manure.

September and October are the best months for planting *Moutans*, but if

planted from pots they may be put out in spring, when all danger of frosts is over. Good plants set in autumn produce many flowers the second or third year after planting, and soon become a most attractive feature of the garden. They flower the first of any Pæonies, and put forth their blooms early in May. When planting, because of their early flowering, positions sheltering them from north and east should be selected, in order that the young tender shoots and flowers may escape the ill effects of spring frosts. Until the second half of this century only white, rose, salmon, and lilac sorts were known; and we are indebted to Mr Fortune for his Chinese varieties, most of which have scarlet, violet, and magenta flowers. Von Siebold, too, introduced a number of Japanese varieties, which, however, form a different race, and are mostly single or semi-double.

The following list contains the best varieties of single and double kinds:—

SINGLE TREE PÆONIES.—Beatrice Kelway, Cecil Rhodes, Christine Kelway, Ella C. Stubbs, Henry Irving, Jean de Reszke, Julius Cæsar, Karl Haag, Lady Sarah Wilson, Miss Beatrice Jones, Mrs W. Kelway, Princess of Wales, Queen Alexandra, Queen of Denmark. DOUBLE TREE PÆONIES: Bijou du Chusan, Blanche Noisette, Debugny, Dr Bowring, Glory of Shanghai, James Kelway (semi-double), La ville de St Denis, *Lilacea pallida*, Louise Mouchelet, Mme. Rattier, Mme. Stuart Low, *Maxima plena*, Reine Elizabeth, Triomphe de Vandermael, Zenobia. Some of the most strikingly beautiful are well worthy of glass—that is, having a sash or two put over them in spring to save them from late frosts and rainy weather. Plenty of air must be admitted, and the flowers gain in an astonishing degree, both in size and colour.

P. lutea, a new plant, has lately come from the mountains of China, with the woody stems of a Tree Pæony and handsome yellow flowers. It is as hardy as the others, and responds to identical treatment. In all probability it will prove the progenitor of a new race of these plants.

PANAX SESSILIFLORUM.—This really belongs to *Acanthopanax*, but is sold under the above name. It is one of the few shrubby Aralias hardy in Britain, coming from Manchuria, where it grows as a tall dense shrub with large trifoliate leaves and rounded heads of dull purple flowers. The chief beauty of the plant lies in the glossy black berries, which hang far into the winter. Syn. *Acanthopanax sessiliflorum*.

P. ARBOREA.—This promises to become an important evergreen for our country, for although it gives one the impression as being tender it really is not so. It makes a large bush 8 feet in height, and its large handsome rich green leaves glisten in the sunshine. Very distinct is this shrub, which flourishes in a well-drained sandy loam.

PANCRATIUM.—Graceful Lily-like plants of the Amaryllis order, the only really hardy kind being the S. European *P. illyricum*, 1 to 2 feet high, which bears in summer umbels of large white fragrant blossoms. It thrives in a warm exposed border of sandy loam soil, well drained, the bulbs protected by litter in winter. These plants are better for transplantation about every third year, as soon as the leaves are decayed in autumn.

PANICUM.—Grasses, chiefly tropical, though a few are hardy enough for outdoor cultivation, and easy to grow in ordinary garden soils.

P. ALTISSIMUM is a handsome hardy perennial grass, forming dense erect tufts, 3 to 6½ feet high, according to climate and soil, the flowers being a dark chestnut-red.

P. BULBOSUM.—A stout kind, with a free and beautiful inflorescence, about 5 feet high; the flowers spread gracefully. It is suited for grouping near the margins of shrubberies.

P. CAPILLARE.—A hardy annual, growing in tufts from 16 to 20 inches high, pretty in full flower, the tufts being then covered with large pyramidal panicles of graceful airy form and purplish in colour. It grows in any soil, often sows itself, and is suited for borders or beds, being one of the most graceful of grasses.

P. VIRGATUM.—A handsome hardy grass, 4 to 6 feet high, forming close tufts of leaves 1 to 3 feet long, with graceful branching panicles of dull purple, the spikelets drooping and curiously twisted. Admirable for borders or for isolation in the picturesque flower garden or pleasure ground. Its colour, though quiet, is pretty throughout the autumn, and not without effect even in winter. Division.

PAPAVER (*Poppy*).—Some of the most brilliant of hardy flowers, and of the simplest culture. There are a few good perennials, but the majority are annual and biennial. They range from the tiny alpine Poppy to the stately Eastern Poppy and its varieties. All are easily raised from fresh seeds.

Most Poppies re-sow themselves, and sometimes too freely, and these self-sown plants are always the first to flower. Where seed is not wanted, the pods should be removed as fast as they form, to prolong the show of flowers. The following are the best garden kinds :—

P. ALPINUM (Alpine Poppy).—A plant of dwarf habit from the limestone rocks of the Alps, about 6 inches high, with finely cut grey-green leaves and large white flowers of silky texture, yellow at the centre, with sometimes a green spot at the base of each petal. When in good condition, from May to September, this little plant is charming, but it is apt to perish, unlike a true perennial, especially if disturbed. It does best in the rock garden, in rather poor soil, with good drainage and full sunlight, and will thrive in walls and rocky clefts ; it will sometimes "sow itself," coming easily from seed. It varies much in colour, with scarlet, pale rose, and yellow forms, and one in which the petals are fringed.

P. NUDICAULE (Iceland Poppy).—A dwarf robust kind, with leaves deeply lobed, and large rich yellow flowers on stems of 12 to 15 inches. It thrives in rich light soils, and is useful for cutting, if young flowers are gathered early in the day. Though a perennial, it is a short-lived one, and worth little after its second season. Coming readily from seed and blooming in its first year, it is more often grown as an annual, flowering from May to October if kept from seeding. The flowers give many pretty shades, from orange to pale red, yellow, and white, the petals with a satin sheen and crumpled.

P. ORIENTALE.—The most showy of Poppies, and among the noblest of hardy plants, being robust, long-lived, with stout hairy leaves and stems, and of easy increase by seeds or division. A fine distinct form of *P. orientale* is *P. bracteatum*, and the two have been freely crossed with good results. *Bracteatum* is the better plant, rising with masses of luxuriant foliage and huge blood-red flowers with bold dark blotches, 6 to 9 inches across, and carried on stout stems with blooms set among large leafy bracts, the flowers coming a little earlier and lasting longer. Other forms are *concolor*, an unspotted variety ; and *triumphans*, of dwarf habit. The named garden hybrids in red, orange, salmon, pale pink, purple, and maroon, with many intermediate shades, are useful for bold effects.

NAMED HYBRIDS. — The best of these are Blush Queen, Loveliness, and Medusa, in carmine and pale pink ; with Psyche, Vesta, and Silver Queen coming nearest white. Rosea, Rose Queen, and The Shah are fine shades of deep rose approaching crimson ; with Pride of Livermere, an immense flower of blood-red, and Waterloo, a dark crimson suffused with violet, the leaves remarkably woolly. Salmon Queen, Lady Roscoe, Brightness, and Hesperia give charming shades of salmon-red, and Prince of Orange, Mogul, Fire-King, Trilby, and Duke of Teck flowers of crimson or scarlet. Mahony and Darkness are in shades of deep maroon ; Distinction is rosy-lilac shading to maroon ; the Princess of Wales a peculiar satin-grey tint shot with pink. There are now many seedlings in such soft "art shades," and though not pleasing to all tastes, these flowers gain in value for decoration by their milder poppy smell, this being a serious fault with the more showy kinds. Other distinct varieties are Grenadier and *semi-plenum* with duplicate petals ; Fringed Beauty, in which the crimson-scarlet petals are deeply cut ; Tulip, with long tapering buds of lasting character ; and Mrs Marsh, a fine flower with a showy blending of scarlet and white. Dividing is best done after flowering in autumn, and the choicer kinds may be raised from root-cuttings, which come quite true.

P. PAVONINUM (Peacock Poppy).—An annual from the sandy plains of Turkestan, where it makes neat little tufts of about 12 inches, free in flowers of crimson-scarlet with an inside ring of black. The flowers are peculiar in bearing two horns upon the sepals ; the brilliant flowers and compact growth of the plants make this one of the best of annual Poppies.

P. PILOSUM.—A perennial Poppy from the mountains of Greece, with tall much-branched stems and hoary leaves. The flowers are borne very freely, several together upon a stem ; they are about 3 inches across, and of a pretty soft shade of reddish-buff, with a pale spot at the base of the petals. A good kind for grouping on dry banks.

P. RHÆAS (Field Poppy). — Annual flowers raised from the scarlet Poppy of our fields, in varied colours ; single and double forms, some self-coloured, and others variegated or fringed. A well-known strain is that of the "Shirley Poppy," now much varied as to colour, the latest gains being pretty salmon tints. These little plants should be sown thinly in light rich soil, and thinned to prevent crowding. There are several double-flowered strains, known as French, German, and Ranunculus flowered Poppies. A new variety, *japonicum*, from Japanese gardens, has smaller and fuller flowers, more varied as to shape.

P. RUPIFRAGUM.—Little hairy plants like a perennial Shirley Poppy, of delicate appearance, 1 to 2 feet high, with a neat habit, and useful for cutting. The flowers are 2 to 3 inches across when

fully open, and a soft orange or terra-cotta colour. Morocco and S.W. Europe.

P. SOMNIFERUM (Opium Poppy). — An annual stately and showy with large flowers, the foliage grey-green, flowers variable in form and colour, rank in smell and useless for cutting, but of good effect when grouped boldly. The plants mostly grow 2 to 3 feet high, with single flowers ranging from white to deep crimson, and double ones with heavy scarlet, white, or striped flowers, of great beauty. Good single kinds are Maid of the Mist, white with finely fringed petals; The Bride, also white; Flag of Truce, Miss Sherwood, with pale pink edges; Danebrog, a very handsome flower in scarlet and white; and Mephisto, scarlet and black. The double forms are yet more varied, including those known as the Carnation and Pæony-flowered Poppies, the first with fringed petals, and the second with very full broad ones. Favourite double kinds coming fairly true are *Mursellii* and *Mursellii splendens:* Mikado, in white and crimson; Mary Campbell, very full and finely fringed; White Swan, also white; and Cardinal, with fiery red flowers, very large and full, with fringed petals.

P. UMBROSUM.—A brilliant annual, about 2 feet high, like the common field Poppy, but of a darker red, and with a jet black blotch at the base of each petal conspicuous both inside and out, making masses of this plant showy in early summer. A compact form has arisen under cultivation, and one with double flowers. Seeds should be sown in autumn, in order to secure strong plants for the ensuing summer. Caucasus.

P. ARENARIUM.—A showy annual from the Caucasus, bearing purple flowers with dark spots. Other handsome Poppies, such as *Heldreichii* and *spicatum*, both from Asia Minor, with orange and brick-red flowers respectively, are perennials of easy culture.

PARNASSIA (*Grass of Parnassus*).—Pretty perennials for the bog garden. In our moist heaths and bogs *Parnassia palustris* is frequent, and a very pretty plant it is—handsome enough to cultivate in moist spots, where it will grow as in its native haunts. Three other kinds, natives of N. America, are quite as showy. *P. fimbriata* has large flowers with peculiar fringe-like appendages, its kidney-shaped leaves resembling those of *P. asarifolia*, another hardy species, about 9 inches high, which bears similar white flowers without fringes. *P. caroliniana* differs from *P. asarifolia* in having oval or heart-shaped leaves; it flowers about the same time, usually from the beginning of July till the end of August. These hardy Parnassias thrive best in a moist peaty soil or a spongy bog. Seed, division. Saxifrage order.

Parnassia palustris (Grass of Parnassus).

PAROCHETUS (*Shamrock Pea*).—*P. communis* is a beautiful little creeping perennial with Clover-like leaves, 2 to 3 inches high, bearing in spring Pea-shaped blossoms of a beautiful blue. Division or seed. Nepaul.

PARROTIA (*Iron Tree*). — Low, Hazel-like trees, natives of N. India and Persia, less remarkable for their beauty of flower than for fine colour in autumn, when the leaves give a mixture of crimson, orange, and yellow, unique among hardy trees. The best known is the Persian, *P. persica*, which is hardy at least in S. England. It is quite free in our Sussex soils. Seeds or layers.

PARRYA.—A small group of dwarf perennial herbs from high mountain or Arctic regions, with thick root-stocks, narrow leaves, and showy flowers in white, rose, or purple, and rather like a dwarf Hesperis in effect. They are easily grown in the rock garden in ordinary soil, and increase by division. Very few kinds are in cultivation, though several are well worth growing, such as *P. integerrima*, with pretty purple flowers in April and May; *P.*

nudicaulis, a charming plant with large lilac flowers in early summer; and *P. Menziesii*, from N.W. America, with soft rosy or deep purple flowers in spikes of 6 inches.

PASSIFLORA (*Passion-flower*).—The hardy blue Passion-flower, *P. cærulea*, from its beauty and distinctness deserves to be grown wherever the climate permits. It is not so suitable for arbours or trellises as for walls; the heat from the walls aids in ripening the wood, and so enables it to withstand the winter. A southern aspect is best for it, though it grows against west or east walls, only requiring a good soil, and, perhaps, a slight protection during winter. In places where it fruits freely the bright orange colour continued far into autumn is an added merit. To ensure fruiting, several plants should be planted not far from one another. The white variety, Constance Elliot, is as hardy as the older kind. No other variety of *P. cærulea* is so distinct, and no other Passion-flower is hardy enough for outdoor walls.

PAULOWNIA.—*P. imperialis* is a fine flowering tree from Japan, not suitable for our climate generally, though in a few places it succeeds. It comes into flower and leaf so early that the buds, and often the young leaves, are injured by late frosts; otherwise there may be a lovely bloom. It is fine in leaf as well as in bloom; the leaves are a foot in length, and have even exceeded 20 inches. The flowers are in erect spikes, and shaped like those of a Bignonia of a delicate mauve-purple, blotched inside with a deeper tint. In countries a little warmer than Britain

Passiflora Constance Elliot.

this tree is very beautiful, and much used in public gardens and even in street planting. At maturity the Paulownia assumes a dense rounded head, but rarely exceeds 30 feet in height, although in some south-coast gardens there are trees of 40 feet.

PENNISETUM.—*P. longistylum* is one of the most elegant of grasses, 1 to 1½ feet high; the flower-spikes, borne on slender stems, are from 4 to 6 inches long, of singular twisted form, and enveloped in a purplish feathery down. It is useful for cutting, as it lasts a long time, is perennial and hardy, growing in free garden soil. Easily raised from seed, or root division in early spring. *P. fimbriatum* is a similar species, equally desirable. *P. japonicum* is a taller kind with long narrow leaves and a dense rounded spike. *P. macrourum*, like a miniature Pampas Grass, is a tall perennial from the mountains of S. Africa, with spikes of flower a foot long. *P. latifolium* from S. America is a noble plant in the summer garden, but will not stand our winters in the open.

PENTSTEMON (*Beard Tongue*).—For their varied colour, profuse flowering, and graceful habit, Pentstemons have a high value for our flower-beds, especially as their beauty covers five months, commencing in June with the charming blue *P. procerus*, and finishing with the endless varieties of *P. Hartwegi* in shades of rose, scarlet, and crimson, whose beauty holds its own even in November, after more fragile plants have perished.

As regards culture, the species have the reputation of being difficult to manage, as some of the shrubby section die when apparently in health. To ensure success, drainage is often essential, as they fear moisture at the roots more than cold. The best soil is friable loam, with a mixture of well-decayed leaf mould and sharp sand. It is well to have a few plants in cold frames, to fill any gaps in the borders. They may be grown from cuttings or seeds. Seed should be sown in February or March on a gentle hot-bed under a frame, in seed-pans well drained with broken plaster and filled with a compost of peat soil and sand. In April the seedlings should be pricked out under a frame, and these, planted out in May, will usually flower by autumn.

The following are the cultivated species. Some are not sufficiently hardy for border culture, though they succeed well enough against a warm wall. It is a very large genus in the vast range of its own country, so here are given a selection best for our climate.

P. ACUMINATUS.—A pretty plant growing rigidly erect to 12 or 18 inches, with thick greyish leaves clasping the stem and a compact spike of mauve or violet flowers, wide at the throat and nearly an inch long.

P. AZUREUS.—A beautiful plant forming a neat tuft of narrow grey leaves and loose spikes of azure-blue flowers shading to reddish-purple at the base. N. California. *Jaffrayanus.*—One of the best dwarf forms, about a foot high, with reddish stems bearing large flowers of rich blue in showy clusters of three to five blossoms.

P. BARBATUS.—A tall, erect plant, very showy in a dry season, and one of the best and hardiest kinds. Its spikes of narrow tubular flowers, varying from light pink to bright carmine, rise from a dense spreading tuft of bright green leaves. A flesh-coloured form is known as *carneum*, and there is also a white form. Other varieties are *Torreyi* with deep scarlet flowers, longer in the lip and coming rather later than in the parent; and *Antwerpensis*, of looser procumbent habit, the stems rooting where they touch the ground, and bearing small flowers of vivid scarlet. Syn. *Chelone Barbata.*

P. CÆRULEUS.—A dwarf kind rarely exceeding 9 inches, with large flowers varying from light blue to lilac and white, or more rarely flushed with rose. The plant is sub-shrubby in habit with grey foliage, and is one of the most beautiful for the rock garden.

P. CAMPANULATUS.—A Mexican species of about 2 feet with diffuse spreading habit, branching freely from a woody base; stemless leaves narrowing from a broad base and much toothed. Long narrow spikes of flowers variously shaded in pink and violet, and borne during a long season. Comes freely from seed.

P. GLABER.—A handsome plant, and one of the best, with several fine seedling forms. Dwarf erect growths, often less than a foot high and slender in habit, with long narrow leaves, smooth and wavy. Profuse in fleshy flowers of an inch or more, wide at the mouth and borne in clusters of six or seven; colour, bright blue shading to violet or purple. Banks of the Spokane River in N.W. America. Among its many good forms are *alpinus*, a dwarf robust kind with dense clusters of clear azure blue; *cyanthus*, a form from the Rocky Mountains, with taller and greener stems, broader in leaf, with dense clusters of blue; *hybridus*, stouter and

more vigorous with large heads of blue and rosy-purple; *speciosus*, a narrow-leaved form with beautiful bright blue flowers shaded purple; and *splendens*, a tall plant with flowers of rich dark blue. Seed should be sown early in spring. Syns. *P. speciosus* and *preanthera*.

P. HETEROPHYLLUS.—A lovely little sub-shrub, 12 to 15 inches high, with narrow leaves of grey-green, and slender branching stems of clear, bright blue flowers, with a rosy flush deepening to purple, and often much varied upon the same plant. July. Thrives best in warm sheltered spots and light soil, and it is best to winter a reserve of cuttings under glass. California.

P. MENZIESII.—A shrubby kind found by Douglas in the Rocky Mountains. It is a good rock plant for a sunny corner in dry sandy soil, with freely spreading stems of less than 12 inches, and pretty rose-purple flowers of brilliant hue. Increased by cuttings in sandy soil. Its several forms are: *Douglasi*, with small thick leaves and lilac or rosy-purple flowers; *Newberryi*, forming a graceful bush with pink or rosy-purple flowers; and *Scouleri*, a taller and earlier flowering form, of trailing habit, rooting at the joints, and hardier than most, its flowers of bluish-lilac or violet-purple. Oregon.

P. OVATUS.—A pretty mountain plant from the limestone summits of Idaho, with slender erect stems of 3 feet, bearing bright green leaves and loose spikes of blue flowers changing to rosy-purple. It is best grown from seed at frequent intervals, old plants perishing.

P. SECUNDIFLORUS.—A distinct plant of free growth, with narrow grey-green leaves and bluish flowers suffused with bronze where touched by sunlight. They are an inch or more long, very broad and bell-shaped towards the mouth, and carried in long, narrow, one-sided racemes. Colorado.

Hybrid Pentstemons are supposed to have come from *P. gentianoides*, but more largely from the pretty *P. Hartwegi*. *P. Cobæa*, too, has probably come in somewhere, for some varieties bear a strong resemblance to it. Whatever their parentage, they are beautiful plants, and much use should be made of them, as they are valuable in autumn and carry their beauty into winter; at least, in western and seaside gardens.

They succeed in any good soil, such as a good loam enriched with manure and leaf-soil. They can be planted out as groups in beds, or in the mixed border, where their various colours blend charmingly, ranging from white to scarlet, with intermediate shades of pink, rose, purple, carmine, and purplish-lilac. If good plants be put out by the end of April, they will bloom about the middle of June, and yield flowers until winter. They are increased both by cuttings and by seeds.

PERAPHYLLUM RAMOSISSIMUM.—A shrub of the Rose family, summer-leafing, inhabiting dry hillsides in California and other parts of the western United States. Its blossoms, pure white and each about three-quarters of an inch wide, are followed by round, yellowish edible berries about half an inch in diameter. The foliage is a greyish-green. The chief thing to remember in its cultivation is that it needs as sunny a position as possible.

PERIPLOCA (*Silk Vine*).—*P. græca* is a hardy shrubby climber of the Stephanotis order, excellent for walls, arbours, trellises, and the like, but owing to the somewhat unpleasant odour of its flowers should not be planted against a dwelling-house. Its long slender stems and branches form a dense mass, and at midsummer are covered with brownish-red velvety flowers. Seeds or layers. S. Europe.

PERNETTYA (*Prickly Heath*).—Evergreen shrubs of the Heath family, from S. America. At one time several of the wild kinds were grown, but none proved satisfactory until by crossing and selection a race of seedlings was obtained from *Ps. mucronata* and *angustifolia*. These seedling forms of *mucronata* are among the most beautiful of berried shrubs, bearing dense clusters of berries varying in size from a small Pea to a small Cherry, and in colour from white, pale pink, and lilac, to crimson, purple, and nearly black. The plants differ in habit, some being nearly prostrate, and others erect or drooping, though the largest are not much over 2 feet high; their fruits also vary in density and texture. They are often borne so freely that little plants of a few inches high will be loaded down with them, but in some gardens, and for no apparent reason, not many are set. The plants do best grouped together in sunny places, where they shade each other's roots, and where the atmosphere is moist and the ground cool, and the soil rich in peaty or vegetable matter. They succeed well, however, in stiffer soils, such as clay and limestone marl, especially if given a little

good soil at the outset, and soon make dense masses, spreading by suckers.

PEROWSKIA ATRIPLICIFOLIA (*Silvery Sage*).—A beautiful silver-grey half-shrubby plant of the Sage order, with a pungent odour, growing 3 to 5 feet high, with blue and white flowers in July and August. The effect of the numerous flowering shoots and the grey foliage is good, and the plant is worth a place in the choicest garden for its graceful habit and long season of beauty, and the value of its slender panicles for cutting. It does best in a sunny spot, and is hardy—at least in the south. Cuttings. Afghanistan.

PETALOSTEMON (*Prairie Clover*).—Pretty clover-like perennials, mostly from the western states of America, and not much grown, though well worthy of cultivation in warm open soils, coming readily from seed. The best species are *P. candidus* with white flowers on stems of 1 to 2 feet; *P. oligophyllum*, with spike-like white heads on slender stems; *P. tenuifolium*, with narrow silvery down-covered foliage, and spikes of rosy-purple flowers; and *violaceus*, forming a neat tuft of finely-cut foliage and showy spikes of deep violet flowers. All are better for a dry place.

PETASITES (*Winter Heliotrope*).—*P. fragrans* is a rampant weed blooming in December and January, unless

The Winter Heliotrope (*Petasites fragrans*).

the weather is very severe. The flowers, deliciously fragrant and of a pale dingy lilac, are gathered in short panicles upon stems of 4 to 12 inches. It is unfit for garden culture, as it runs very much at the root and becomes a weed, and should be planted on rough banks and in hedgerows, as it is very

Petrocallis pyrenaica.

useful for winter bouquets, and may carpet a small clump of shrubbery where it can be conveniently gathered. It is not a hardy plant, and is cut down by severe frost. S. Europe. Another species, *P. vulgaris* (Common Butterbur), is a native plant, 2 to 2½ feet high, closely allied to the common Coltsfoot, but having great Rhubarb-like leaves. The flowers appear in spring before the leaves, and are a dull pinkish-purple. Exotic plants with less effective leaves than this have been used in gardens; but it should not be allowed to come nearer to the garden than the margin of some adjacent stream or moist bottom. An allied plant, *P. japonica gigantea*, has recently come to us from the Far East, where the great rounded leaves, as large as a small sunshade and used as such by Japanese children, rise on stout fleshy stems as high as a man. It makes a stately waterside plant, and coming from the island of Saghalien it should prove fully hardy in this country. Its flowers come in early spring, before the leaves. Division.

PETROCALLIS (*Rock Beauty*).—*P. pyrenaica* is a beautiful little alpine plant, forming dense cushions 2 to 3 inches high, resembling a mossy Saxifrage, with fragrant pale lilac flowers, faintly veined, coming in April.

Though hardy, it is fragile, and happiest on the rock garden, in sandy fibry loam, in level sunny spots, where it can root freely in moist soil mingled with broken stones. Alps and Pyrenees. *P. fenestrata* is a newer kind, of similar habit but with white flowers.

PETTERIA RAMENTACEA (*Dalmatian Laburnum*).—A deciduous tree-like shrub allied to Laburnum and Cytisus. Introduced in the middle of the last century, but not common in gardens. It is quite hardy, flowering in May and June. The seeds are poisonous. Dalmatia and Montenegro.

PHACELIA.—A group of sun-loving annuals with showy flowers, mainly from the western states of N. America. Some are only a few inches high and spread along the ground; others are several feet in height, bearing bell-shaped or tubular flowers, blue, mauve, purple, or white, and carried in curved racemes which straighten as they expand. Only two or three kinds have been grown in our gardens, but others are well worth a place as they become better known. They are of easy culture as annuals, some kinds preferring sandy soils and others something stiffer. The tall kinds should be planted fairly close, and the trailers farther apart, and most kinds will begin to flower in about ten weeks from sowing. Nearly all are more or less hairy, and like most hairy plants they like a dry place, and then bloom freely and through a long season. Seeds may be raised in heat, and the seedlings planted out in clumps, but this needs care, for all Phacelias dislike moving. They may be sown in the open during April. August sowings may also be made, to be wintered under glass, and flower in early spring. Few plants are more valuable to bee-keepers. The best kinds are :—

P. CAMPANULARIA (Gentianette).—The best kind, free in its fine dark blue flowers, spotted with white in the throat; they last a long while, and the plant makes a pretty carpet in sunny places.

P. DIVARICATA.—A showy kind, abounding on the shores of the Bay of San Francisco. Its fragile stems spread freely bearing oval leaves curving upwards at the edges, and loose spikes of pale violet flowers three-quarters of an inch across.

P. DOUGLASII.—A neat spreading plant with the habit and appearance of *Nemophila insignis*, its hairy and much-cut leaves gathered near the base of the stems, and the bell-shaped flowers half an inch across.

P. HUMILIS.—An alpine species, coming from a height of 5,000 to 6,000 feet in the mountains of California. Though of erect habit, it is only a few inches high, branching freely from the base. The leaves are spoon-shaped, and the rich indigo-blue flowers carried freely as loose spikes.

P. MENZIESII.—Of erect habit and 9 to 12 inches high, covered with rough grey hairs; leaves long, narrow, and stemless. The flowers come freely in clusters of bell-shaped deep violet or white blossoms, half to three-quarters of an inch across, rich and lasting. A good and easily grown kind.

P. PARRYI.—From S. California, is a compact plant of 6 to 12 inches, with oval leaves, hairy on both sides and somewhat sticky. The flowers are shaped like a shallow bell, with a spreading mouth an inch across, their prevailing rich purple colour relieved by five pure white spots. This with me was almost as pretty as the Gentianette.

P. VISCIDA.—From open spaces near the Pacific coast; is a hairy, gum-covered plant of 1 to 2 feet, with rounded and toothed leaves 1½ to 3 inches long; the flowers are deep blue or purple with a white centre. Syn. *Eutoca viscida.*

P. WHITLAVIA. — A loosely-branched plant of 1 to 2 feet, with angular toothed leaves, and large rich blue flowers nearly an inch across, the corolla divided into five spreading lobes. There is a white form and a variety *gloxinioides*, in which the flowers are spotted.

PHELLODENDRON (*Eastern Cork Tree*).—Hardy summer-leafing trees about 50 feet high, from China and Japan, spreading in habit, and with large leaves cut into many leaflets. Of quick growth, they soon make a low round head, and thrive in all save wet soils. The bark is thick, light grey, and corky. They are being used in America for street planting, but are little known in this country. Increase by seeds and root-cuttings rooted in sand. The Chinese *P. amurense* is the hardier and more vigorous kind, *P. japonicum* being perhaps a form of it, and *P. sachalinense*, a promising kind, the last to come.

PHILADELPHUS (*Mock Orange*).—Beautiful flowering shrubs from the temperate regions of the northern hemisphere, summer-leafing, and with few exceptions hardy. There are several wild kinds so much alike in flower that some confusion of name has arisen, and no garden need contain

more than the best kinds, which are now fairly well known. Of more importance than the natural species are the new hybrid forms, valuable for their neat habit and the fact that they bloom in a small state, whereas the wild kinds seldom flower well until large. These tall kinds are of fine effect when allowed to take their natural form as masses of 15 to 20 feet, loaded with white flowers in May, June, or early July. By growing several kinds we secure a succession of flower. They do best in light and rather dry soils, and some do not bloom freely in rich moist land. Some kinds thrive in partial shade, and all are good town plants, but they are finest when well exposed, and such kinds as *microphyllus*, *Coulteri*, and *mexicanus* enjoy a hot place, the last two being tender, save upon a wall. All should have plenty of room to spread and droop, and if they grow too large it is better to cut them to the ground and start afresh than to cut them into ugly forms. There is a golden-leaved form of the Common Mock Orange, which retains its colour well and does not burn if planted where it gets a little shade at midday. Increase is by suckers, layers, or cuttings of soft wood rooted under glass during summer, or ripened stems inserted in the open during autumn; these last, however, take about a year to root. The best kinds are as follows:—

P. CORONARIUS (Mock Orange).—This kind, with its twiggy growth and heavy perfume, is well known, but less planted now than formerly, or banished to distant parts of the garden, where, under good conditions, it will reach a height of 10 feet, flowering early in May. Some of its garden varieties are distinct and useful: *foliis aureis* is the Golden Philadelphus; *nanus* is a dwarf plant, but too shy in flower to be of value; *Satsumi* is a graceful Asiatic form; while there are varieties with variegated foliage, and others known as *florepleno*, *primulæflorus*, and *dianthiflorus*, with double or semi-double flowers.

P. COULTERI.—A nearly evergreen kind from N. Mexico, of fine habit, and distinct in its waxy flowers with a rosy-purple flush at the base of each petal, forming an inner zone of colour. It is somewhat tender, and does not flower freely, but by crossing it has given the new hybrid *P. purpureo-maculatus*, a hardy and free-flowering kind, differing from anything hitherto seen in this family.

P. FALCONERI.—A graceful plant, 16 feet high, of uncertain origin, but probably from Japan. Its pure white fragrant flowers, of waxen texture, and with sharply-pointed petals, are borne freely in June upon wand-like arching stems that droop gracefully under the heavy clusters.

P. GORDONIANUS.—From N. America, where it is common near the Columbia River. It grows 10 to 15 feet, is of graceful habit, with a profusion of large faintly-scented flowers in July. This kind will do well with a little shade, and its great value is its late blooming.

P. GRANDIFLORUS.—The best large-flowering kind, and one of the finest of hardy shrubs, reaching a height of 15 to 20 feet. Its numerous flowers measure 2 inches or more across, of a good white, and either scentless or faintly fragrant. There are many forms and slight variations of this plant, differing little in general character, and running one into the other. The forms known as *floribundus*, *latifolius*, and *Zeyheri* are all good, and especially *laxus*, a loosely spreading plant of graceful outline, and not very tall-growing. These forms flower in June.

P. HIRSUTUS.—Less showy than most kinds, the flowers being small and mostly solitary, but they are scattered so freely that a well-flowered plant of 4 to 5 feet is pretty, and its effect distinct from the other kinds.

P. INODORUS.—Much like *P. laxus*, but more erect and vigorous, with large scentless flowers, useful for cutting where the odour of other kinds is an objection. It is a plant that forces well, but, coming from the southern States, it is a little tender in cold districts.

P. LEMOINEI.—A hybrid from *microphyllus* crossed with *coronarius*—a beautiful shrub, flowering in the latter half of June, its abundant pure white flowers about 1½ inches across, and with a pleasant fruity fragrance. Of neatly compact habit, it reaches a considerable size at maturity. Its form *erectus* differs only in its more rigidly erect habit. From this first cross has sprung a race of shrubs of fine habit, refined fragrance, and much freedom of flower, the value of which is as yet hardly shown in our gardens. One of the newest and best is *P. purpureo-maculatus*—quite a distinct break in colour.

P. LEWISII.—From the Pacific coast of N. America, and nearest *hirsutus* in its hair-fringed leaves. The flowers are a little smaller, scentless, opening at the end of June and early in July. *P. californicus* is a pretty but rather tender form of this plant.

P. MEXICANUS.—A beautiful plant and nearly evergreen, but tender save in the warmest parts of the south-west of England and Ireland, where it occasionally

covers warm walls near the sea to a height of 15 feet. The flowers are large and deeply cupped, of waxy texture, and either creamy-white or faintly flushed with rose. Their strong spicy perfume is agreeable, and unlike that of any other kind.

P. MICROPHYLLUS. — From Colorado, California, and N. Mexico; hardy with us and richly beautiful in warm soil and a place where its wood is well ripened. The flowers are small and solitary, but freely produced towards the end of June, milk-white, and with a fruity fragrance. It is the tiniest of the genus, rarely reaching 3 feet in height, with slender stems and small glossy green leaves the size of Box, and greyish, with hair on the under side.

P. NORMA. — A beautiful garden form of Mock Orange. The flowers, which are borne for some distance along the gracefully arching shoots, are each fully 2 inches in diameter, and single, except in a few cases where there is a tendency to an increased number of petals. They are of the purest white, with bright yellow anthers.

P. SATSUMI. — From Japan, with freely-branched slender stems of 4 to 6 feet, long narrow leaves, and rather small pure white flowers, in pairs or loosely clustered.

HYBRID KINDS.

P. AVALANCHE.—Flowers large with a pleasing odour, and so numerous that the branches are weighed down with them.

P. CANDELABRE. — A dwarf-growing form, with flowers larger than those of *P. Lemoinei*, and with undulated petals. Very pretty in the rock garden.

P. CONQUETE.—A free-flowering form, whose branches arch over with the weight of blossoms. These, which are large and double have almost a Tulip shape, and are fragrant.

P. FANTAISIE. — From the seed-bearing parent this inherited a slight pink tinge towards the centre of the flower, and for hybridising it has proved to be valuable.

P. GERBE DE NEIGE. — Pure white single flowers nearly a couple of inches in diameter and prettily cup-shaped.

P. MANTEAU D'HERMINE. — A general favourite which forms a compact specimen thickly clothed, when at its best, with double creamy-white blossoms.

P. PERLE BLANCHE.—The finest double Philadelphus, with very large flowers of the purest white, and borne in great profusion.

P. PURPUREO-MACULATUS.—This was given a first-class certificate by the R.H.S., which was well deserved, not only for its merit, but also for the possibilities it opened up of quite a new race of these beautiful shrubs, whose blossoms hitherto have been white, or nearly so, whereas those of the newcomer have on each petal a distinct blotch of purple-rose.

Philadelphus microphyllus.

PHILESIA (*Pepino*).—*P. buxifolia* is an exquisite dwarf shrub, with large carmine-red Lapageria-like bells (2 inches long) nestling among and suffusing with their rich colour the sombre evergreen foliage. It is a precious shrub for the cooler parts of the rock garden and succeeds admirably in the more favourable coast gardens in moist peat. S. Chile.

PHILLYRAEA (*Jasmine Box*).—

Distinct shrubs from the south of Europe, at one time among our best evergreens in the south. Farther north they are tender in hard winters. The newest kind, and the hardiest and best, is Vilmorin's Jasmine Box (*P. decora*), with laurel-like leaves and fragrant white flowers in early spring. Coming from the mountains of Asia Minor, this will withstand severe frost, is free from insects and disease, and quite at home in town gardens. The flowers are sometimes followed by black fruits like a sloe, containing seed by which the plant is readily increased. Nurserymen have found that the Phillyraea unites readily with Privet, so that nearly all their stock is grafted, and the plants die out just as they should be in full beauty. This has helped to give the group a bad name, but for shore gardens of light soil there are few better shrubs.

The kinds from the Mediterranean are classed as three species, but they vary so much from seed and are so closely connected by intermediate forms as to be better treated as one variable kind. There is first the Narrow-leaved Phillyraea (*P. angustifolia*), 15 feet or so in height, with long narrow leaves which may be small and narrow, as in *rosmarinifolia*, a fine dwarf evergreen from Italy. *P. latifolia* reaches the size of a small tree of 30 feet, with rigidly spreading branches, a compact habit of growth, and broad deep green leaves. To it belong several forms—the Holly-leaved (*P. ilicifolia*), which is one of the best known; *laevis*, with rounded leaves and saw-like edges; *spinosa*, in which the edges are more sharply toothed; and *rotundifolia*, with broadly rounded leaves. Between *angustifolia* and *latifolia* comes *P. media*, intermediate in size and vigour as well as in its leaves. Strangely enough, it is also the most tender, many plants having been cut to the ground or killed outright in the winter of 1880. This also has several forms, such as *buxifolia*, with short rounded leaves; *oleæfolia*, in which they are longer and narrower; and *pendula*, with a diffuse habit. All do best in light open soils and in full sun, and all are of fine habit without much pruning, though they will bear this if necessary and make thick, handsome hedges. All the kinds bear greenish-white flowers, but only in *P. decora* are they large enough to attract.

PHLOMIS (*Jerusalem Sage*). — A group of old-fashioned shrubs and perennial plants belonging to the Sage family, and interesting because so unlike most other plants. There are now not many kinds in cultivation, but even these show much beauty and diversity of form and habit. The leaves of many kinds are wrinkled, woolly, or hoary, becoming smaller up the stems, while the handsome hooded flowers are yellow, purple, or white, and borne in clusters around the stem, tier above tier. The perennial kinds are easily suited as to soil, and will take care of themselves in the wild garden or rougher parts of the pleasure grounds. The shrubby species are best in light and dry soils where their growth is not too vigorous and the wood well ripened. All are easily increased, the shrubby kinds from seed, or cuttings of the young shoots put in under glass in spring or summer; the herbaceous kinds by seed, or division in spring or autumn. The best kinds are:—

P. ARMENIACA.—With down-covered silvery leaves and stems crowded with whorls of rosy flowers, several of which are in good condition at the same time. A good rock plant. Armenia.

P. CASHMERIANA.—At its best a striking plant, about 2 feet high, with densely woolly stems and leaves, and heavily crowded whorls of pale lilac or rosy-purple flowers, from the end of July. Newly reintroduced, doing best in light soils and in warm gardens near the sea. N. India.

P. FRUTICOSA (Jerusalem Sage). — A shrubby kind, hardy in warm dry soils, with evergreen stems at times reaching 6 to 8 feet, but mostly 3 or 4 feet high, and clothed with evergreen woolly-grey leaves of wrinkled texture. The flowers are showy, coming as whorled heads of bronzy-yellow from June to August, and lasting well on the plant, or when cut. S. Europe.

P. HERBA-VENTI.—Handsome perennial from Spain, needing a warm dry soil and some protection if grown far inland. It makes a bold spreading mass of 2 to 3 feet, with hairy green or purple stems, and long green leaves which are rough on the upper side and hoary beneath; flowers violet-purple, from July to September. It is a good perennial of easy culture.

P. SAMIA.—For warm soils, free in its pale yellow and orange flowers, sometimes shading to pink. A pretty plant, blooms in May and June. Mountains of N. Africa.

P. TUBEROSA.—In good soils, 3 to 5 feet, with handsome dark-green leaves and dense whorls of rosy-purple flowers in summer, partly fringed with white hairs.

The foliage is good, and the plant of easy increase by its fleshy tubers. East of Europe and Siberia.

P. VISCOSA (also *P. Russelliana*).—A rather clammy plant of 3 feet, with bold wrinkled leaves, green above and downy beneath, and numerous bright yellow flowers of fine effect.

PHLOX.—Early or summer-flowering Phloxes have chiefly come from *P. suffruticosa*. They include many varieties, from 2 to 2½ feet in height, varying principally in colour, and flowering during June and July. They grow in any good border or bed, and if the sub-soil be too wet, it must be drained and enriched with good old manure. In the south of England, and especially on warm dry soils, these early Phloxes often do best in partial shade, being more sensitive to fierce sun heat than the later kinds. In dry seasons a good surface mulching is a great help.

Herbaceous Phloxes have been obtained by hybridising and selecting from various N. American species, principally *P. paniculata* and its varieties *acuminata, decussata,* and *pyramidalis,* which are stronger and taller than the early Phloxes, and immediately succeed them in flower, thus prolonging the season. Within the last few years there has been great advance in these plants, both in habit and freedom of flower. They are now bright and varied in colour, including all shades from rich vermilion to pure white, the old dingy purples and magentas having disappeared. These Phloxes are gross feeders and repay generous treatment and rich soils. Being great surface rooters, too, they are much benefited during the growing and flowering season by a mulching of old manure or loam with artificial manure added, and by copious waterings of weak liquid manure or water. Saturating the beds once each week is the most satisfactory way, and to make this effective it were better that the surface of the beds be slightly below that of the surrounding level. For large beds, and to get bold masses of distinct colour, the following are the most effective, and can be used according to the shades of colour required, viz.: Mrs Jenkins, Frau Ant. Buchner and Sylphide, white; Etna, orange-red; Eclaireur, carmine and salmon; Coquelicot, rich vermilion, but not always easy to grow; Boule de feu, scarlet with a dark eye; Eclatante, crimson shaded orange; Crepuscule, silvery mauve with crimson centre; Aubrey Alder, pale salmon-carmine eye; Aurora, salmon-rose; Baron von Dedem, brilliant scarlet, best of its colour; Elizabeth Campbell, handsome light salmon, indispensable; Dr Konigshofer, orange-scarlet, very brilliant; Eugene Danzauvilliers, lilac and white; General van Heutz, brilliant salmon-red. Iris, Le Mahdi, and Widar are of shades of violet or heliotrope. They are very beautiful and distinct. The varieties named vary from 2½ to 3½ feet in height.

Phloxes are propagated in various ways: by seeds, cuttings of the young shoots in spring, by division, and by root cuttings in autumn and winter. By early lifting the plants and placing them in a frame, the resulting growth rooting more quickly and certainly than shoots taken direct from plants in the open. In a frame or in gentle heat cuttings of the freshly made shoots root in about three weeks. Cutting propagation is necessary periodically in order to maintain vigour, the plants giving their best spikes when from two to four years old. Propagation by division is easy. The only pieces of value, however, are the young vigorous ones around the outside of the clump, and in particular those which run out at a short distance from the clump. *The solid woody portion of the clump is useless and should be rejected.*

P. DIVARICATA.—A handsome plant from N. America, larger than either the Creeping Phlox (*P. reptans*) or the Moss Pink (*P. subulata*), and about 1 foot high, with large lilac-purple blossoms in summer, while the leaves are rounded at the base, and are egg-shaped or lance-shaped. There is a good pure white form, and a new garden variety *Laphamii*, with larger flowers of deeper colour and of much stronger growth, reaching 18 or 20 inches. Its great value is, however, the fact that it flowers considerably later. Rock garden in good soil. Increased by cuttings and division.

P. DRUMMONDI.—One of the best of half-hardy annuals, varied and brilliant in colour. Seed should be sown about the first week in March in shallow pans or boxes, in a light rich soil, and a warm and rather moist temperature. Prick off the seedlings when fit to handle in boxes, or a bed in a warm house in a temperature of 50° to 60°. Here they will soon grow, and place them out in the shade to harden as the weather gets warm. Those growing

in a bed should be again transplanted to a prepared bed in a cold frame, kept covered for a few days, and hardened gradually. When the plants are 3 to 4 inches high, pinch out the main shoot, to induce bushy growth and prolong the flowering period. The bed should be fully exposed to the sun, and if good moist soil, the plants will be uninjured even in the hottest weather. Varieties are endless, and some very distinct named sorts differ from the type not only in colour, but in growth and the shape of their flowers.

P. OVATA CAROLINA.—A handsome plant, about 1 foot high, with slender stems terminated by a cluster of large showy deep rose flowers very useful for cutting. *P. ovata* has broader leaves, while *P. nitida* is also handsome. *P. glaberrima* is far less important. These kinds flower in summer, in ordinary soil and an open spot. Cuttings or division.

P. PILOSA.—A pretty plant 1 to 2 feet high, large flat clusters of white, pink, or purple flowers, ½ to ¾ inch in diameter, appearing from June to August. It is one of the rarest of cultivated Phloxes, though a spurious kind is sometimes sold for it. The true plant reminds one of *P. Drummondi*. Another rare species is the true *P. bifida*, an elegant plant, the flowers bluish-purple.

P. REPTANS (Creeping Phlox).—This is a beautiful little plant, sending up numbers of stems from 4 to 6 inches at the end of April or beginning of May, each bearing from five to eight deep rose flowers, Of mat-forming habit and easiest culture, it thrives best in moist loam and cool situations, and is readily increased by division.

P. SETACEA.—Sometimes considered the same as *P. subulata*, but its leaves are longer and farther apart on its trailing stems, the whole plant being less rigid. The flowers are of a charming soft rosy-pink, and have delicate markings at the mouth of the tube. *P. s. violacea* is a handsome Scotch variety, more lax in growth and with deeper coloured flowers, almost crimson. Both the variety and the type are lovely plants for the rock garden, where, with roots deeply seated among the fissures and enjoying coolness and moisture, they thrive luxuriantly in any amount of sunshine.

P. STELLARIA.—This little plant is often confused with *P. subulata*, but is quite distinct, with much longer, narrow, pale green leaves, and white flowers. There are several fine garden varieties belonging here, with lilac or mauve flowers on dark wiry stems, their petals set starwise. They flower in May and June, and are exceedingly beautiful in masses, but they do not hug the ground like the more mossy forms of *subulata*. The form called *lilacina* in particular is so strong that it is best used by itself, or its stems overrun the dwarfer kinds. Its leaves are beautifully clean-looking and healthy, and the charming pale mauve flowers are carried in profusion.

P. SUBULATA (Moss Pink).—A moss-like little evergreen, the flowers pinkish-purple or rose-colour, with a dark centre, and so dense as to completely hide the plant. The stems, though 4 inches to 1 foot high, are always prostrate, so that the dense matted tufts are seldom more than 6 inches high; but in moist, sandy, and well-drained soil, when the plant is fully exposed, the tufts attain a diameter of several feet and a height of 1 foot or more. *P. frondosa* is a vigorous form, and in light garden soil its trailing branches will soon cover almost a square yard of surface. *P. nivalis* is as trailing, but smaller, and with shorter, more densely arranged leaves. Its flowers are snow-white. *P. Nelsoni* is a hybrid between *P. subulata* and its forms, as it possesses foliage of an intermediate character; the flowers pure white with a charming pink eye.

The dwarf Phloxes are so closely allied that general cultural remarks will suffice. Well-drained ordinary garden soil and sunny exposure are essential. Though perfectly hardy, the damp atmosphere of mild winters is fatal, and as the plants do not seed freely, they must be increased by cuttings. Inch-long, young unflowered shoots make the best cuttings, and root with greater certainty. Heel cuttings, too, with the lowest leaves removed, are also excellent. Insert in very sandy soil June to August, placing cutting pots in handlight in frame or greenhouse. They will soon root, and become good flowering plants the following season. With large patches, the readiest way is to sprinkle sandy soil over the entire plant and to work the same gently amongst the branches with the hand. If this be done during the summer or the early autumn, the trailing branches will form roots the following season, and may be planted elsewhere. These Phloxes are charming in spring, hardy, and form gay cushions on the level ground, or pendent sheets from the tops of crags or from chinks in the rock garden. Rocky hills and sandy wastes in N. America.

PHORMIUM (*New Zealand Flax*).—Fine-leaved plants from New Zealand, like giant Iris in foliage, their tough broadly sword-shaped leaves rising to a height of many feet in the more vigorous kinds, and of stately

effect at the waterside mingled with Bamboos, Pampas Grass, and Gunneras. In hard winters even strong plants may be injured or cut to the ground, but the roots seldom perish, and by selection hardier forms are now available than those first introduced. In the most favoured districts one well-grown plant of Phormium will spread into a mass 30 or 40 feet in circumference and 8 to 10 feet high, with flower-stems rising several feet above this. *P. tenax* is the common green-leaved kind, and is a noble plant of very vigorous growth, but tender. Some of its forms are more resistant, the hardiest of all being the Powerscourt variety, with a narrower and more glaucous leaf of erect growth, and about 6 feet long. A form with dark leaves is *atro-purpurea*, with a deep purplish zone along the edges of the leaf, and in some plants wholly suffusing it. *P. Cookianum* is hardier than *P. tenax* and a much smaller plant, with leaves of only 3 to 4 feet and yellow flowers; it also has a variegated variety. *P. Colensoi* is another fairly hardy kind from the mountains of New Zealand, with a spreading and graceful way of growth and narrow leaves. Of this there is a distinct garden form called *compacta*, very dwarf, neat, and hardy, with quite narrow leaves. Increase by seed and root-division, seed from one plant yielding a variety of forms. The Phormiums like a deep soil with abundance of sunlight and moisture, and where there is nothing to fear from frost they do well treated as waterside plants.

PHOTINIA.—A group of handsome shrubs, mostly evergreen, and too tender for our gardens, where even the hardiest kind, *P. serrulata*—known as the Chinese Hawthorn—is rarely seen except along the south coast, though quite hardy enough for sheltered places inland. This is one of the best of seaside shrubs, making dense masses 20 or more feet in height and width. The foliage is handsome, glossy like that of a Portugal Laurel, and of a fine red colour in spring. These young leaves come so early as to risk injury from late frosts, and to escape this the plant is mostly grown against walls when away from the sea, and is very handsome in this way, bearing heads of small white flowers in May and June.

Another hardy kind from China and Japan is *P. variabilis*, which loses its leaves in winter, but retains its bright scarlet berries long, and the leaves themselves turn a fine crimson before falling when the plant is grown in an open and sunny place and in dry soil. To do well with us the Photinias should have a light, well-drained soil, shelter, and sunshine.

PHRAGMITES (*Great Reed*).—*P. communis* is a most graceful plant in all open waters, by which it forms excellent covert for duck. It grows to a height of 6 feet, with drooping heads of brownish-purple flowers in autumn.

PHYGELIUS (*Cape Figwort*).—*P. capensis*, a Cape plant of some beauty, 3 or 4 feet high, and bearing racemes of brilliant scarlet flowers, which open in May and June and continue far into autumn. It is hardy near London, though it does not flourish so well in the open as on a wall, where it will stand any amount of sun-heat and even long periods of drought. Readily increased by cuttings or portions of the root-stock, the bases of the stems being furnished with rootlets.

PHYLLODOCE.—A dwarf evergreen mountain shrub with pretty bell flowers, thriving only in cool parts of a good rock garden. A British species thrives in fine soil about Edinburgh. *P. Breweri* is found in vast areas of the Sierra Nevada, California.

PHYSALIS (*Winter Cherry*). — *P. Alkekengi* is a handsome and curious S. European plant with ample downy leaves, bearing in autumn bright orange-red bladder-like calyces, enclosing Cherry-like fruits of a pleasant acid flavour, and perfectly wholesome either raw or preserved. It is a hardy perennial, requiring a warm border; 1 to 1½ feet high. Division or seed. Solanaceæ.

P. Francheti.—A splendid new hardy plant from Japan, possibly a variety of *P. Alkekengi*, but so distinct as to merit special attention. It is larger altogether than the old kind both in foliage and calyx, which is brilliant coral-red in colour, though varying a little in shade, sometimes touched with orange, and generally 3 inches in length with a circumference of 7 or 8 inches.

PHYSOSTEGIA (*False Dragon's-Head*). — Vigorous perennials, best

for grouping with the bolder kinds of hardy plants. *P. virginiana*, 1 to 4 feet high, has flesh-coloured or purple flowers crowded in terminal racemes. There are pretty white and

Physalis Alkekengi (Winter Cherry).

pink forms, *alba* and *rosea*, and a more vigorous one, *speciosa*, with larger flowers of deeper purple colour. These are all very pretty for cut work, or grouped in the border. *P. imbricata* from Texas has higher and more slender stems, broader leaves, and larger flowers of a deeper colour. *P. denticulata* is similar to *P. virginiana*, but rarer and less showy. All these kinds flower in summer, and thrive in any ordinary soil. Division.

PHYTEUMA (*Rampion*).—The Rampions are neat, pretty, and interesting plants of the Bellflower order, with small flowers in profusion. They enjoy a sunny position, and some of them are good rock plants. *P. orbiculare* is a rare and desirable native Rampion, 1 to 2 feet high, and is best among rock plants, where it would be free from the destructive effects of the hoe and rake. It flourishes in a dry position in a mixture of limestone grit, peat, sand, and loam, and has violet-blue flowers in July. It is extremely impatient of removal or division, and should be raised from seed sown in autumn in a cool frame. *P. Sieberi* is neat for the rock garden, requiring a moist, sunny situation, and a mixture of leaf-mould, peat, and sand. It forms cushion-like tufts, and in May and June has dark blue flower-heads, on stems 4 to 6 inches long. Division. *P. humile* is a neat tufted plant for the rock garden, where it can get a dry sheltered position in winter and plenty of water in summer. The flowers are blue, and produced in June on stems 6 inches high. Division. *P. comosum* is very slow-growing, and must be particularly guarded against slugs. It is a true rock plant, suitable for a fissure, vertical or sloping to the sun, and does best amongst a mixture of a little loam, peat, sand, or grit, where it can root to the depth of 2 feet. It bears almost stalkless heads of dark purple flowers, has Holly-like leaves in June and July, and comes best from seed. *P. Charmeli* and *P. Scheuchzeri* are much alike, *P. Scheuchzeri* being dwarfer. It bears pretty blue flowers, on stems from 6 to 12 inches in height, and is evergreen. A new kind, *P. campanuloides*, is one of the best, with tall much-branched spikes of deep violet-blue flowers, very freely produced. Sow seed in autumn,

Phyteuma comosum.

and do not expect too much the first year.

PHYTOLACCA (*Virginian Poke*).—This N. American perennial, *P. decandra*, is from 5½ to nearly 10 feet

high, with reddish stems and flower stalks. The flowers, on cylindrical spikes, are at first white, but afterwards change to a delicate rose. In autumn the colour of the leaves is in rich contrast to the purplish-black berries, closely set on columnar spikes. It grows in almost any kind of soil, and is raised from seed or division. It is scarcely refined enough in leaf for the flower garden, but is effective near the rougher approaches of a hardy fernery, in open glades near woodland walks, or in any like position.

PICEA (*Spruce Fir*). — Usually stately evergreen cone-bearing trees of the northern world and mountains, including among them the common Norway Spruce and the Douglas Fir, usually doing best in moist valley soils. Trees that were once included under this head are now placed under *Abies* and also *Pinus*, to which the reader should refer for trees he seeks which are not placed under this heading. As regards grouping and other matters, what has been said of *Pinus* and *Abies* may be considered as applying to a great extent to these trees also.

P. AJANENSIS. — The finest of the Japanese Spruces, distinguished from all others by the bluish silver tint of the young branches on the under sides, but which are upturned so that the whole tree has a silvery appearance. It is very hardy, and thrives best in a stiffish soil. It should not be in a too sheltered place, or it will commence growth too early and be liable to injury by late frosts.

P. DOUGLASI (Douglas Fir).—Among the noblest trees of the West American forests, this is one of the best trees ever introduced, both for ornament and timber. It should be planted only where the soil and situation are suitable, and not in exposed places, as it thrives best in sheltered valleys or woods, but it will live in various soils. There are several varieties of the tree, that known as the Colorado variety being considered the hardiest. The glaucous form is a handsome tree, more rapid in growth than any other silvery conifer.

P. EXCELSA (Norway S.).—Is a quick-growing tree, but too short-lived to be of great value for ornament. It is a mistake to plant it on high exposed places or in hot sandy soil. In most sheltered valleys it is a beautiful tree when seen in masses. There are many forms of it, a good number of which are mere monstrosities not worthy of the garden, especially the so-called golden and silvery varieties.

P. MORINDA.—No other Spruce has such gracefully drooping branches as this Himalayan tree, which is also known well by its other name, *P. Smithiana*. It is worthy of a place among the finest ornamental trees, but must have a deep moist

Picea Morinda.

soil, more heavy than light, and the position not too sheltered. Under these conditions it flourishes in the bleakest parts of the eastern counties, where some of the finest examples of it exist.

P. OMORICA (Servian S.).—A recent introduction which promises to be a good addition to the Spruces notable for ornamental planting. It has somewhat the appearance of *P. orientalis* in its growth, and very dark green foliage, but the leaves are larger, flat, and decidedly silvery beneath.

P. ORIENTALIS.—This Caucasian Spruce has somewhat the appearance of the Norway Spruce, but it is a smaller growing tree with much shorter leaves and branches, and is more suitable as a garden tree, as it is of denser growth and retains its lower branches. It is of a deep glossy green, and on this account, and its dwarfed growth, is especially suitable for grouping with the larger conifers. It is very hardy, and thrives best in moist soils.

P. POLITA (Tiger-tail S.).—This is one of

our newer Japanese trees, but, judging by the largest trees in various parts of the country, it is a Spruce that will thrive in these islands. It is of handsome outline, and with leaves the stiffest and sharpest of all, which renders it cattle proof. It stands exposure well, and is a tree for high windy places.

P. PUNGENS. — An American Spruce most valuable for this country, hardy, standing exposure in high places better than any other. It is generally known in gardens by the variety *glauca*. It is largely raised from seed in order to select from the seedlings silvery plants.

P. SITCHENSIS.—In places where this Spruce thrives it is a very beautiful tree, because of the bluish silvery-grey tone of its needle-like leaves. In a damp climate where the soil is deep and moist it thrives, but in dry soils is soon in a wretched condition. It grows well and rapidly with me, and is the best of trees for wet soils. Alaska to N. California.

PIERIS.—Evergreen shrubs of Japan, China, and America. Their effect is

Flowers of Pieris.

precious among Magnolias, Rhododendrons, and the choicer evergreen shrubs, and the same soil usually suits them. They may also be grouped as bold rock-garden shrubs in moist peaty or leafy soils, thriving all the better for partial shade at midday. The following are the best kinds:—

P. FLORIBUNDA.—A close-growing evergreen shrub from N. America, with narrow oblong leaves and white urn-shape flowers in dense one-sided racemes, formed in the autumn and opening in spring. The plant is hardy in most soils, but thrives best in those of a peaty and leafy nature.

P. FORMOSA.—A beautiful and tall evergreen shrub, only hardy in the west and south of England, suffering injury at times even in the Thames Valley. It bears dark green leathery leaves, finely toothed at the edges, and drooping clusters of white bells, 6 inches in length, expanding in April and May. Nepaul.

P. JAPONICA.—A beautiful evergreen shrub with long drooping clusters of white flowers, giving almost a lace-like effect to freely flowered plants. It is hardy, and grows much larger than *floribunda*, but is slow and poor on cold or loamy soils, and only luxuriant in peaty or leaf beds that are well drained and free from lime. It will grow in shade and in full sun, but a moist half-shaded place is what it likes best. The flowers open from January to March, according to season, and last a long time, whether cut or in the open air. There are some dwarf garden forms, and one with variegated leaves. Japan.

The increase of all these shrubs is slow, but not difficult. Cuttings from forced plants root most readily, those made from ripened shoots in August taking many months to start in a greenhouse; the same applies to layers, so that these ways are seldom used, except to increase fine seedlings. Seeds ripen freely, and should be treated like those of Azaleas and Rhododendrons.

PINGUICULA (*Butterwort*).—These interesting dwarf bog-plants are pretty in the bog garden or moist spots in the rock garden. There are about half-a-dozen kinds, all resembling each other and, except *P. vallisneriæfolia*, natives. *P. grandiflora* (Irish Butterwort) is the finest. Its flowers are large and blue-purple, the leaves broad, spreading flat upon the rock or soil. It prefers the shady side of a moist mossy rock, where the face is steep and the narrow chinks are filled with rich loam. If planted in earth alone, where the drainage is imperfect, it usually perishes in winter. *P. alpina* differs from all other kinds in having white flowers, marked more or less with lemon-yellow on the lip, but sometimes tinted with pale pink. It roots firmly, by means of strong woody fibres, and prefers peaty soil mingled with shale or rough gravel, and shady humid positions, such as are afforded by a high rock garden with a north

aspect, or by the shelter of a north wall. *P. vulgaris* grows freely in any sunny position in rich moist peat or peaty loam. A small form, with leaves like those of *P. alpina*, both in form and colour, is found in alpine bogs in the north of England. *P. lusitanica*, found on the west coast of Scotland and in Ireland, is smaller than any of the preceding, and has pale yellow flowers. It grows in peaty bogs exposed to the sun. *P. vallisneriæfolia* from the mountains of Spain differs from others in its clustered habit of growth. Its leaves are pale yellowish-green, and sometimes almost transparent, becoming 4 or 5 inches long, and occasionally even 7 inches towards the end of the season. The flowers are large, soft lilac colour, with conspicuous white or pale centres.

PINUS (*Pine*). — Noble evergreen, cone-bearing trees of northern and temperate regions, of highest beauty and use, some of them admirably suited for the climate of the British Islands and giving finest evergreen shelter. When the Mexican and Californian Pines were first introduced and much talked of, little care was taken in discriminating between the hardy and tender kinds, so that the Pines of Mexico and S. California got as good a chance in our pleasure grounds as the most precious of the hardy ones; but if we want to make the best use of the Pines we must plant only the best of the hardy ones and those likely to endure and be useful and beautiful in our climate. Nurserymen seldom take the trouble to see these trees in their native beauty on their native mountains, and, assuming that the nursery or infant state of the tree is the natural form, make ceaseless efforts to keep the trees always in this form, whereas the nature of the Pine is generally to shed its lower branches, and hence we get that wonderful dignity of the Pine as seen on the mountains, both in the new and old worlds, lovely pillars crowding all over the northern mountains. I have seen Pines condemned because they began to assume this habit of shedding their lower branches and taking their true character. Like other important families of trees, these have numerous garden and other varieties which are generally best left out if we seek to get the full expression of the natural beauty of the trees; but, as usual, the practice of professional planters generally is rather against us. Ugly, contracted, and monstrous forms are always in catalogues, which should be let alone there. While such varieties are often worthless, natural varieties, especially of kinds inhabiting vast regions of the earth, like the Scotch Pine in northern Europe, and the Western Yellow Pine in America, may be important in giving us hardier varieties, or those of special use, like the Russian form of the Scotch Fir. Synonyms are numerous, and unfortunately lead to confusion in the nomenclature, but among Pines, if anywhere, what is not worth knowing is not worth growing, and all the great Pines are so distinct in form that those who care about them will soon know them by heart, and the showy labelling method of the "pinetum" is not necessary in any good way of planting.

The "pinetum" which we see in many country places is not by any means the best way of growing the trees. The isolation of specimens in the turf allows the grass in dry seasons to take away all the moisture from the tree, while the effect of this dotting about of trees is far from artistic. The true pinetum is a wood of Pines chosen for their perfect hardiness in any given district, sheltering each other, promoting the true growth of the Pine by their close planting, especially in early life, shading the ground and keeping the moisture in it. In such a pinetum the trees should be planted in groups and colonies, not necessarily rigidly separated by hard-and-fast lines, but sometimes those of like regions running together as the European cone-bearing trees do in the mountains of C. Europe.

The advantage of grouping and massing the Pines in a natural way is that they not only protect themselves from the sun, but the leaves and dead branches of the trees help to nourish the ground. The roots are very near the surface, and they get a source of nourishment which fails them in the ordinary pinetum.

In places where there is not room enough to make a Pine-wood even, we should get a better effect by grouping the Pines than by scattering them about as they are often seen, where there is little room.

In making the "pinetum," the richest ground is often taken, and large holes are made and filled with rich soil, whereas I think the better way would be to choose true Pine soil, if we have it—that is, rocky or poor ground of little use for anything else, and, by rightly choosing and planting the trees, thus doing away with the need of costly and special preparation. Rich soil and preparation give a rapid growth at first, but no means of testing the value of any Pine in the natural soil of the place. The rapid growth is often followed by weakness of wood, and often by too early destruction from storms, while the timber of such trees is always inferior to that grown in poor or rocky ground. We have the clearest evidence, on the mountains of Europe, California, Scotland, and elsewhere, that very fine Pines may be, and are, grown naturally on very poor rocky soils, and we should take this lesson and make our Pine-wood in such a soil, or one as near as we can approach to it. In some places, we may wish for the effects of a Pine-wood in a given situation, and in that way we must take the soil as it comes.

The habit of planting "specimen" trees, common in our present day pinetums, is a costly and not a good way. The best way in all cases is to plant little trees, never over 1 foot high. I have often planted them much smaller with perfect success; they have a struggle at first, but the growth is quicker and cleaner than that of larger trees, the specimens of the ordinary nursery having a very hard time in dry seasons.

In the following enumeration of the finer Pines I have omitted those of doubtful hardiness or fitness for our climate from any cause :—

P. AUSTRIACA (*Austrian Pine*).—One of the best and hardiest pines; distinct in form and colour, attaining a maximum height of nearly 100 feet, of close, dense growth when young, thriving on calcareous and poor stony or rock ground and on clay soils (but not on poor sands). Owing to its close "covert" and habit it nourishes the ground beneath it so well with its fallen leaves that it is self-supporting and gives precious shelter. It is often planted in Britain, but generally set out in the usual specimen way, so that the tree is slow to take its true form as it does when grouped as trees should be. The final form of the tree, which so far we hardly ever see in our grounds, is very picturesque, with a free open head, but, being a free grower and giving valuable wood, however grouped or massed it should be freely thinned so as to allow of its full development.

In books this Pine is sometimes classed as a variety of the Corsican Pine, but, from a planter's point of view, the trees are as distinct as any other Pines in colour and form. Being a native of the mountains of Lower Austria, Styria, and Carinthia, sometimes also growing on the low hills and even plains, it would, I think, be distinctly hardier than the Corsican in the case of very severe winters and their effects in low ground.

P. CEMBRA (Swiss P.).—A hardy northern Pine of distinct, close-growing form, and a very slow grower in our country, as well as in its native land on the mountains of C. Europe or in Siberia, where it attains a maximum height of 100 feet.

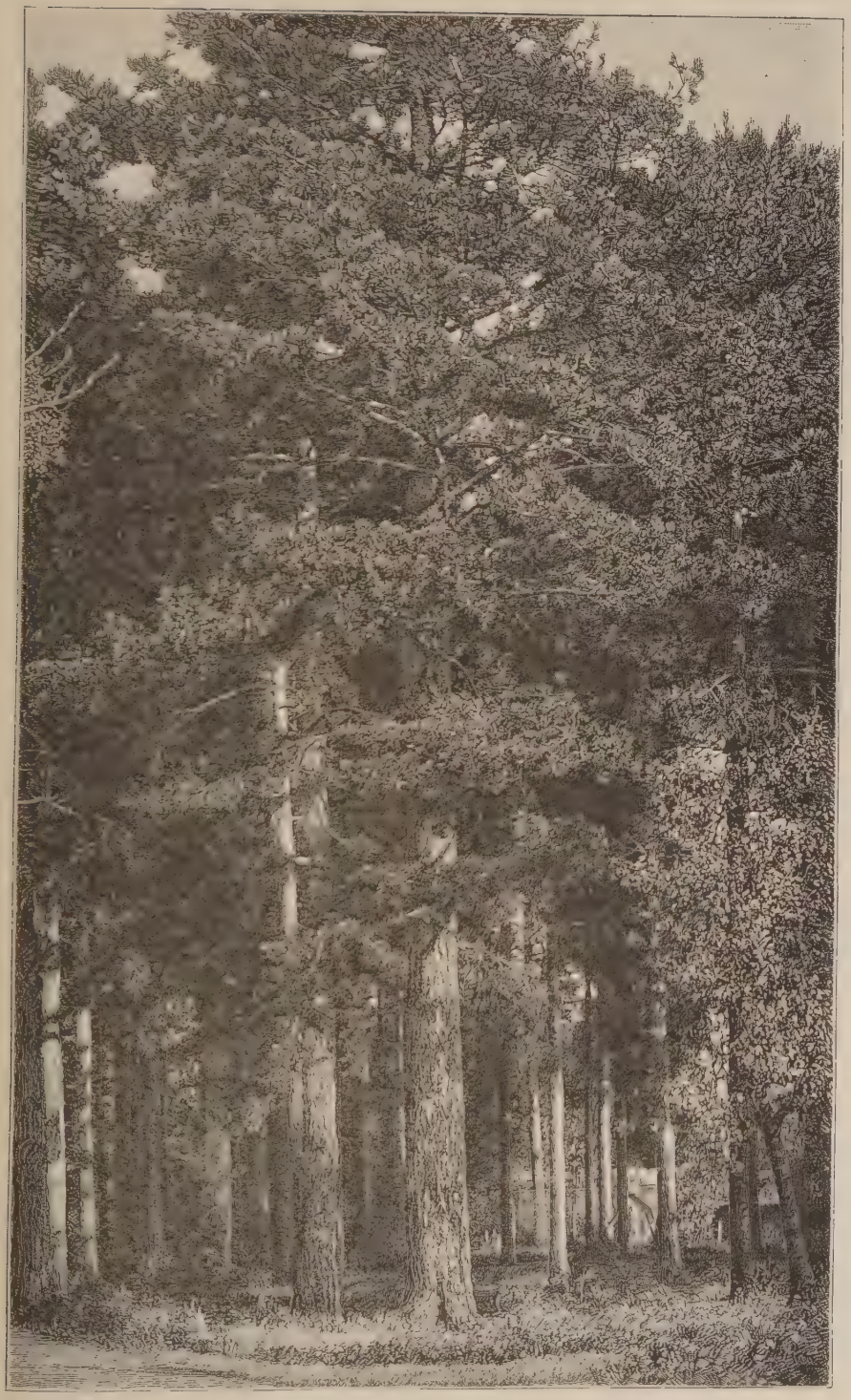
P. COULTERI.—A Californian tree, not so large as other kinds from that great country of Pines, but remarkable for the great size of its cones, which are often 20 inches long and weighing 10 lb. in its own country. In our country this tree should be planted only under the most favourable conditions, in sheltered valleys and on warm soils.

P. EXCELSA (Himalayan P.).—A handsome tree, much planted in Britain, with long, slender, drooping leaves and pendent cones. It is a native of the Himalayas and of very wide distribution in Asia, and also in another form inhabits the mountains of Greece and S.E. Europe on high elevations. In our country it thrives in warm and well-drained soils.

P. HALEPENSIS (Jerusalem P.).—A distinct and very useful Pine throughout the rocky parts of Greece and its islands, also Crete, Asia Minor, Syria, and Palestine. When one travels in those countries the hills seem very bare until you get near their slopes, when the welcome growth of this pine appears, a frequently graceful and stately tree. Coming from such a hot country, it is not likely to be so useful with us, except in warm districts.

P. RADIATA (Monterey P.).—A beautiful Pine of the seashore of California, grass green in colour, and often thriving very well in the southern and western parts of our country, but in inland places suffering in hard winters, although on high ground in the home counties healthy trees may be seen. Syn. *P. insignis*.

P. LAMBERTIANA (Sugar P.).—A noble tree of California and Columbia River, reaching a maximum height of 300 feet, and sometimes 60 feet in girth of stem. We cannot omit such a tree here, but could not expect it to make such



Corsican Pine.

progress as in its own genial climate, and where planted with us it is usual to do so in sheltered situations and in free, warm soils. The cones are each sometimes over 2 feet long.

P. LARICIO (Corsican P.).—The tallest Pine of Europe, reaching 160 feet high, and over in Calabria and its own country, Corsica, and of very rapid growth in our country, as I have raised woods of it in ten years. The tree, if one raises it from seed, as we should in planting, shows a great variety of habit and even foliage, and if one liked to do anything so foolish one could give Latin names to several forms found in one wood. The Calabrian variety is a more vigorous tree, especially in poor soils.

P. MONTANA (Mountain P.)—A dwarf, very hardy Pine, which clothes the mountains of many parts of C. Europe with a low bushy growth not much larger than the Savin or Furze, but under better conditions getting into a larger state, sometimes into a low tree. In our country it is often called *mughus* and *pumilio*, but the best name for the species is the one given here. It is a useful and distinct Pine for clothing banks and giving cover between taller trees.

P. MONTICOLA (Western White P.).—A Pine of the higher mountains of California, Oregon, and Montana, reaching a maximum height of 80 feet, with a girth of 9 feet. It is considered a western representative of the great White Pine of Canada, and, as it is found at elevations of 10,000 feet, is hardy in our country and better worth planting than many of the trees of greater size.

P. PARVIFLORA.—A medium sized and pretty tree, with dense foliage, cultivated much in Japan, and a native of the northern islands, therefore a hardy tree with us, thriving in deep soil.

P. PINASTER (Cluster P.).—A beautiful Pine of pleasant green colour, 70 feet or more high, native of the Mediterranean region, often by the seashore, and useful in our country near the sea, but often thriving in inland places, best in free and sandy soils. It is also used much in France as a protection against the encroachment of the sea.

P. PINEA (Stone P.).—A distinct and picturesque Pine, old trees attaining a height of 70 to 75 feet. This very characteristic Pine of Italy is not hardy in our country. It has been often planted here, but does not survive hard winters, and should not be planted except in the most favoured parts of the south. It is a native of sandy and rocky places by the seashore in Greece, Syria, and Asia Minor.

P. PONDEROSA (Western Yellow P.).—A very noble tree, reaching nearly 300 feet with a trunk girth of over 45 feet, but in the arid regions found much smaller. Sometimes one may see trees branchless for over 100 feet, but in quite healthy condition. It inhabits Montana, British Columbia, W. Nebraska, and N. California, and is hardy in Britain. There is a form found on the eastern side of the American continent which is hardier. *P. Jeffreyi* (Black Pine) is now supposed to be a variety, also *scopularia*, but it does not grow quite so tall as the others. This *P. Jeffreyi* is found 1,500 feet high on the eastern side of the Rocky Mountains, this answering for its hardiness.

P. PYRENAICA (Pyrenean P.).—A fine, rapid-growing tree, with bright green foliage. A native of the Pyrenees and Spanish mountains, and also in the south of France; 60 to 80 feet high. *P. Brutia* is supposed to be a form of this.

P. RESINOSA (Red P.).—A tall Pine, 100 to 150 feet high, Newfoundland to Manitoba, and southwards through the New England States. From its northern area of habitation this should be a hardy and thriving Pine in Britain.

P. RIGIDA (Torch P.).—A forest Pine reaching a height of 80 feet on sandy and rocky places in Canada, Kentucky, Virginia, and the eastern states. This Pine is hardy and a rapid grower in Britain, growing in moist places less likely to suit the greater Pines.

Pinus rigida.

P. SABINIANA (Grey-leaved P.).—A very interesting Californian Pine, inhabiting the dry and warm hills and the coast ranges and foot hills of Sierra Nevada; not often a very high mountain tree. The grey foliage gives the wild trees the appearance of clouds in the distance.

P. STROBUS (White P.).—One of the noblest forest trees of the northern world, sometimes reaching a height of over 170 feet, with a girth of trunk of 30 feet, though often found much smaller. Owing to the cutting of the

woods in Canada and N. America it is seldom seen in its native dignity in the settled parts. It forms dense forests in Newfoundland and Canada, and westwards and southwards along the mountains. Among the many trees I have planted at Gravetye as evergreen woods, this only has failed. It is cool, heavy soil; but in rocky soils and free there are some fine trees in Wales. It is therefore mainly a question of soil.

P. SYLVESTRIS (Scotch P.).—Our native Pine, and, in its old state, one of the most beautiful and useful we can ever have. It is of very wide distribution in northern, Arctic, and mountain regions, and also on the mountains of Italy and Greece. The Russian variety is considered a more erect and stronger grower.

Old tree, Scotch Fir.

A great number of varieties are mentioned in books and catalogues, and some hybrids, compact and dwarf varieties, including variegated ones, none of any value compared to the wild tree. This Pine sows itself freely in rough heaths and sandy ground, and thrives there.

PIPTANTHUS (*Nepaul Laburnum*). — *P. nepalensis* is a Pea-flowered shrub, with large deep green leaves like those of the Laburnum. It is hardy enough for walls, and in southern and warm localities withstands our winters without even this protection. It has evergreen foliage, and in early summer long dense clusters of large bright yellow flowers similar to those of the Laburnum, but larger. It succeeds best in light soils, and is easily increased by seeds, layers, or cuttings of the ripened shoots in autumn. Himalayas.

PISTACIA (*Mastic Trees*). — Summer-leafing and evergreen trees, generally not hardy enough in our country to be of much value in our gardens. Mr Bean mentions *P. Terebinthus* and *P. Chinensis* as adapted to our climate. The latter is rarely seen thriving. These two may be grown in the open ground. *P. Lenticus*, an evergreen shrub, or small tree, occasionally 15 to 20 feet high, is a native of the Mediterranean region, and produces the resinous substance known as mastic. It is tender in our country, needing the protection of a warm wall.

P. VERA.—A small summer-leafing tree, 20 feet high, with reddish oval fruit, is a native of the Levant and W. Asia. It needs the protection of a warm wall, and even then is occasionally injured by cold.

PITTOSPORUM.—Evergreen shrubs, natives of New Zealand, Australia, and China, few of them in cultivation and those usually only seen in southern gardens or else in sheltered places near the sea, where they form evergreen bushes and trees of some beauty and distinctness of form. *P. tobira* is a good white flowering shrub in some southern gardens, and is among the plants worth growing in tubs or vases for placing out in the summer. *P. undulatum* is a graceful evergreen, and *P. Mayi* and *P. Colensoi* are also very pretty at Castlewellan and other gardens in districts with a climate allowing of the cultivation of the half-hardy evergreens.

PLAGIANTHUS. — Handsome flowering shrubs of the Mallow order, most of which belong to Australia, and are tender, but three kinds come from the mountains of New Zealand, and succeed against walls in the milder parts of Britain. The best is *P. Lyalli*, with woolly leaves of a long heart-shape and large pure white flowers with a bunch of golden stamens, drooping gracefully in clusters upon long stems from the tips of the previous season's growth. They open in June, when the plant resembles nothing so much as a beautiful large-flowered Cherry. After flowering the stems should be cut back and trained, and free growth encouraged, which lasts far into autumn; in

fact, the leaves often hang nearly all winter. In our warmest gardens *P. Lyalli* is hardy without a wall, but seldom flowers so well in the open. It needs a warm, well-drained soil and rich feeding, and is safest screened from the morning sun. Increase by layers and cuttings. *P. Lampeni* is also grown against walls, where it bears a profusion of fragrant, creamy-white flowers, but it is tender, and probably now confined to collections. *P. betulinus* is also rare, but appears hardier than the last, and has grown very rapidly to a height of 20 feet at Castlewellan. It makes a graceful, birch-like tree of 50 to 60 feet in New Zealand, with small leaves and clusters of whitish flowers.

PLANERA (*Water Elm*).—At one time the Zelkowas were classed with Planera, but botanists now recognise only one kind, *P. aquatica*, a tree of the second size, seldom exceeding 50 feet in height, and rare even in its own country—the southern part of the United States. It is hardy in Britain, thriving best in sandy soils beside water, but it will grow almost anywhere except in hot, dry places. It makes a rounded, much-branched head of slender, dark grey shoots, bearing small, Elm-like leaves, and inconspicuous reddish flowers, which appear at the same time in early spring. The seeds are leathery and nut-like, not winged as in the Elm. Increase by seeds or layers, and not by grafting on the Elm, as is too often done.

PLATANUS (*Plane*).—Stately summer-leafing trees of the East and America, of rapid and vigorous growth and high value in the warmer parts of our islands as shade, lawn, or avenue trees; thriving, too, in the centre even of smoke-polluted cities, as in many of the squares in west and central London, and not merely existing, as most trees do in such condition, but attaining much beauty of form and dignity there, as in Berkeley Square and Lincoln's Inn Fields. Here the great trees, getting out of the gardeners' way, or any attack of pruners or self-appointed tree-architects, assume their true and natural form, and are fine at all seasons. Where the Plane is used in the streets of London, and on the Thames Embankment, the costly and wasteful labour of pruning the trees to one ugly shape is carried out. The Planes are easily increased by cuttings and layers, but planters should in all cases avoid them, as they cannot expect from such beginnings the fine, rapid, natural growth and true form of the tree. The Plane which thrives best in London, or what is often called the London Plane, is not (as it used to be thought) the American or Western Plane, but the Eastern Plane or one of its forms, of which the accepted name is now *acerifolia*, a name with many synonyms. The true Western Plane, *P. occidentalis*, is rarely seen in Europe outside of botanical gardens, and, when it is, it has little of the beautiful vigour of the Oriental Plane in our country. The name *Orientalis* is still kept up for a deeply-cut leaved form of Plane, but it is not really distinct as a species from the London Plane. *P. cuneata* is an Eastern species with deeply-cut leaves, but it may be taken for all planting ends that the vigorous London Plane is the Eastern Plane, no matter by what name it is called. The Plane, being a tree of vast distribution in the East, accounts for the origin and distribution of the various forms, mainly differing in the shape and lobing of the leaves. While the tree attains its greatest growth in S. Italy and S.E. Europe generally, it is a noble tree in the southern parts of England, attaining its best size, height, and form in good valley soils, and there are many fine examples of it in the Thames Valley. There is a peculiarity of the bark in scaling off in large irregular patches, which leads to rather a striking effect, and is in no way harmful to the tree. The Greeks and Romans used it much as a shade tree near their public buildings, and from all recorded time it has been much planted in Persia.

PLATYCODON (*Great Bell-flower*).—Perennials, allied to the Bell-flowers. *P. grandiflora* is a handsome Siberian perennial, hardy in light dry soils, but impatient of damp and undrained situations, where its thick fleshy roots decay. Sometimes this begins below and spreads upward, but it generally begins above and spreads downward, the plant rotting off at the neck. The flowers are 2 to 3 inches across, deep blue with a slight slaty shade, and in clusters at the end of each branch. A rich loamy soil and an open situation are best for it. Propagate by seeds, which can be

readily procured. The young shoots, if taken off when about 3 inches long, in spring, and placed in a gentle bottom-heat, will strike, but not freely. The plant is a bad one to divide—division often resulting in failure—and if attempted must be carried out in May, when the growth has just commenced. *P. autumnale*, or *chinense*, from China and Japan, is taller and more robust than *P. grandiflorum*, with narrower leaves, but more dense, and its flowers, though smaller, are pretty evenly distributed along the upper half of the stems. Besides a white variety, it has a tendency to become semi-double, by a sort of "hose-in-hose" reduplication of the corolla, similar to what occurs in many of our Campanulas. The dwarf, *Mariesi*, from Japan, is distinct in habit, with rich blue flowers.

PLATYSTEMON.—*P. californicus* is a pretty Californian hardy annual Poppywort, forming a dense tuft, studded thickly in summer with sulphur-yellow blossoms. It merely requires to be sown in ordinary soil

Platystemon californicus.

in the open border either in autumn or spring; but the seedlings should be well thinned out.

PLUMBAGO (*Leadwort*), syn. *Ceratostigina plumbaginoides*. — An interesting family of graceful perennials and half-shrubby plants, the hardiest being *P. Larpentæ*, the blue-flowered Leadwort, from China. *P. capensis*, usually grown under glass, may be planted out in summer, bearing its lovely pale blue flowers continuously. The plants should be specially prepared for out of doors, young ones being best for edgings, though taller ones may be used in certain positions. *P. capensis* is used with good effect in German gardens. *P. Larpentæ* is perfectly hardy, its wiry stems forming neat and full tufts, varying from 6 to 10 inches high, according to soil and position. In September these are nearly covered with flowers, arranged in close trusses at the ends of the shoots, and of a fine cobalt-blue, changing to violet; they usually last till the frosts. A warm sandy loam or other light soil and a sunny warm position should be given. Increased by division of the roots during winter or early spring.

POA.—Perennial and annual grasses, few worth cultivating. *P. fertilis* has dense tufts of long, soft, smooth, slender leaves, 10 to 18 inches high, and arched gracefully on every side. In the flowering season they bear airy, purplish or violet-tinged panicles, rising to twice the height of the tufts. Isolated on lawns the plant is effective, and if in good soil gives no trouble. *P. aquatica* is a stout native grass, 4 to 6 feet high, usually occurring in wet ditches, by rivers, and in marshes. It is one of the boldest and handsomest of hardy grasses for the margins of artificial water or streams, associated with such things as the Typhas, Acorus, Bulrush, and Water Dock. It increases rapidly.

PODOPHYLLUM (*May Apple*). — Distinct perennial herbs, three of which are from Asia and one from N. America. The best known is *P. Emodi*, from the Himalayas, a plant 6 to 12 inches high, with large leaves cut into wedge-shaped lobes, their whole surface a fine bronzy red in early spring. The flowers are large, white or pale rose, and followed in August by fruits of a brilliant red as large as a hen's egg, and edible, though of mawkish flavour. The plant succeeds in the moist peaty soil of woodlands, especially in wet places and in partial shade, and where the leaves are sheltered from cold winds. Increase by division of the creeping root-stock, or seed sown in cold frames as soon as

ripe. This is a handsome plant for shady plots of deep moist soil in the wild garden or the margins of peat borders, but it dies away quite early in summer, so must be grouped with other things for autumn effect. *P. peltatum* is from rich woods of the eastern United States, with poisonous roots and leaves, though the fruits are harmless. It is not so handsome as *Emodi*, but will grow in drier places, and its glossy, wrinkled leaves, borne umbrella-like on a long bare stem, are distinct and interesting. The waxy-white cup-like flowers come in May, and give place to yellowish-green fruits like a wild Apple—whence the name May Apple. *P. pleianthum* is from China, its spreading leaves rising to nearly 2 feet in height, with large drooping bunches of purple flowers and heavy grey-green fruits turning purple when fully ripe.

POINCIANA.—*P. Gilliesii* is a beautiful sub-tropical tree which thrives against walls in the Isle of Wight. The late Rev. H. Ewbank wrote of it in *The Garden* as follows :—"The foliage gives it very much the look of an Acacia at a little distance, and it is often mistaken for one of them. But no Acacia that I have ever seen has such splendid blossoms. My great surprise has been in its well doing to such an extent in the open ground that I have now no fear for it at all, and during the worst frost we have had here during the last twenty or thirty years it was entirely uninjured."

POLEMONIUM (*Greek Valerian*).—A small family of Phloxworts, mostly from N. America. A few of them are familiar in gardens, and among the best are the following :—

P. CŒRULEUM (Jacob's Ladder).—Besides the original blue-flowered species, there is a variety with white blossoms, a second, *acutiflorum*, in which the petals are narrow and pointed.

P. CONFERTUM.—This is one of the finest of all, with slender deeply-cut leaves and dense clusters of deep blue flowers on stoutish stems about 6 inches high. It requires a warm spot in the rock garden and a well-drained, deep, loamy soil. Though it requires plenty of moisture in summer, excessive dampness about the roots in winter is hurtful. Rocky Mountains.

P. HUMILE.—A truly alpine plant with pale blue flowers on stems a few inches high. In a dry situation and a light sandy soil it is hardy, but on a damp subsoil not so. *P. mexicanum* is similar but larger, and being only of biennial duration is scarcely worth cultivating. There is a garden form, *Richardsonii*, of much stronger growth and with far larger flowers, as many as a score of deep blue bells with a yellow eye sometimes coming in one cluster. N. America.

POLYGALA (*Milkwort*).—The hardy Milkworts are neat dwarf plants, with flowers much resembling those of the Pea family. *P. Chamæbuxus* (Box-leaved Milkwort) is a little creeping shrub from the Alps of Austria and Switzerland, where it often remains quite tiny. In gardens, on peaty soil and fine sandy loams, it spreads out into compact tufts covered with cream-coloured and yellow flowers. The variety *purpurea* is prettier; the flowers are a lovely bright magenta-purple, with a clear yellow centre. It succeeds in any sandy, well-drained soil. *P. paucifolia* is a handsome N. American trailer, 3 to 4 inches high, with slender prostrate shoots and concealed flowers. From these shoots spring stems, bearing in summer one to three handsome flowers about three-quarters of an inch long, generally rosy-purple, but sometimes white. It is suited for the rock garden, in moist leaf-mould and sand. The finest of the American kinds is *lutea*, with bright yellow flowers, but this is still very scarce with us. Some of the British Milkworts, especially *P. calcarea* and *vulgaris*, are interesting and easily grown in sunny chinks of the rock garden if in calcareous soil. They form neat dressy tufts of blue, purple-pink, and white flowers. Seed may be gathered from wild plants and sown in sandy soil.

POLYGONATUM (*Solomon's Seal*).—Graceful tuberous perennials, distributed chiefly in the north temperate regions, and with very few exceptions quite hardy with us. They thrive in almost any position in good sandy soil and with an occasional dressing of leaf soil. It is in shady nooks of the wild garden, however, under deciduous trees, that they are seen to the best advantage. They are increased by seeds, which, sown as soon as gathered in autumn, germinate in early spring; the creeping root-stocks may also be divided, and in good soil soon form nice tufts.

P. BIFLORUM.—A pretty species from the wooded hillsides of Canada and New Brunswick, of slender, graceful growth, the arching stems 1 to 3 feet in height, the

small flower-stems jointed near the base of the flowers, which are greenish-white, two or three together in the axils of the leaves.

P. JAPONICUM.—A distinct plant, native of Japan, hardy in this country, flowering in early April, growing about 2 feet in height, the leaves of a very firm leathery texture, the flowers white, tinged purplish.

P. LATIFOLIUM. — It is a native of Europe. A fine robust species, the stems being from 2½ to 4 feet high, arching, the leaves bright green; flowers large, two to five in a bunch from the axils of the leaves, greenish-white, in July. N. America.

P. MULTIFLORUM (Solomon's Seal).—This is the common Solomon's Seal. It grows from 2 to 3 feet high, glaucous green; the flowers are large, nearly white, one to five in a bunch in the axils of all the leaves. It is a very free-growing species, and its arching stems and drooping flowers are very attractive.

P. ROSEUM.—This appears to vary considerably in the length and breadth of its leaves, in their being more or less whorled, and also in the size of its flowers. It grows 2 to 3 feet in height, the leaves in whorls of three or more; the flowers, in pairs in the axils of the leaves, are clear rose-coloured and very pretty amongst the narrow green foliage. N. Asia.

P. VERTICILLATUM.—From the temperate Himalayas, and general in the northern hemisphere. It was found in Perthshire, Scotland, in 1792, and appears to have been cultivated by John Tradescant, jun., as early as 1656; 2 to 3 feet high under cultivation, the leaves four to eight in a whorl; the flowers, two to three in a bunch in the axils of the leaves, are greenish-white. The fruits are red when ripe, and remain hanging after the leaves have fallen.

POLYGONUM (*Knotweed*). — A vast family, comprising 150 species of world-wide distribution, many of them weeds, but with several noble plants well worth considering for their beauty of form. They thrive in any soil; those of a bushy habit should be allowed plenty of space.

P. AFFINE.—An alpine plant of the Himalayas, where it grows on the wet river banks and meadows, and hangs in rosy clumps from moist precipices. In cultivation it is 6 to 8 inches high, with rosy-red flowers in dense spikes borne freely in September and October.

Polygonatum multiflorum (Solomon's Seal).

P. BALDSCHUANICUM.—A plant of value for draping low trees and bushes. Its sprays of rose-flushed flowers come in quantity with pretty effect during summer and autumn, and is prettier left to grow freely among shrubs or along a stretch of sunny fencing, finding its own way gracefully. C. Asia.

P. CILINODE.—A climbing kind from N. America, of great vigour, a single plant covering many square yards in a season, with myriads of small white flowers of charming effect in autumn. For covering trees, thrusting its way through bushes, or to adorn a hedge side, this is one of the best, not being averse to shade.

P. CUSPIDATUM (Japan Knotweed).—

Of fine graceful habit, its creamy-white flowers borne in profusion. It should be grown apart on the turf or in the wild garden. It is easier to plant than to get rid of in the flower garden; a rank weed, right in copse or pond-side.

P. ORIENTALE (Persicary).—An annual kind, easily raised from seed, and sometimes self-sown in old gardens. It is mainly useful for bold temporary planting, reaching a height of several feet within a few weeks, and its white or rosy-purple flowers are of some effect in autumn.

P. POLYSTACHYUM.—A Himalayan plant much confused with *P. molle*, to which it is superior. It never grows high, and from late in September carries a mass of spreading plume-like sprays of white flowers, with a scent of honey, and lasting for several weeks. It needs quite a sharp November frost to check it, and its stout leafy stems, with their olive-green leaves threaded with red veins, are neat all the summer, and its roots do not run.

P. SACHALINENSE.—A huge perennial

Polygonum sachalinense.

with bright green leaves upwards of a foot in length, the flowers greenish-white, in slender drooping racemes. It thrives in a moist soil near water, where it is effective, and it makes a fine feature on the turf or in a spot where it can run about freely. Sachalien.

P. SPHÆROSTACHYUM. — One of the dwarfest and prettiest of the group, but not always easy to grow. From a tuberous root rise short semi-prostrate stems with narrow leaves and drooping spikes of blood-red flowers, continued through a long season on a healthy plant. It increases very slowly, and thrives best in an open place in the rock garden, where it can enjoy moisture in summer and yet be dry in winter. Himalayas.

Polygonum vaccinifolium.

P. VACCINIFOLIUM.—Very distinct in aspect, quite hardy, and thrives in almost any moist soil, but is best seen where its shoots can ramble over stones or tree stumps. Under favourable conditions it grows rapidly, and produces a profusion of Whortleberry-like leaves and rosy flowers in September and October, when it is valuable in the rock garden. Himalayas.

POLYPODIUM (*Polypody*). — This large family of Ferns contains several good hardy kinds, the principal being the common *P. vulgare*, which has about a score of cultivated varieties differing more or less widely from each other. The most distinct and beautiful as well as the freest in growth are *cambricum*, *elegantissimum*, *pulcherrimum*, and *trichomanoides*. *P. Barrowi* and *P. Prestoni*, plumous forms of *P. cambricum*, are handsome and ornamental forms. Though preferring shade, they only need a good supply of water at the root during summer, and will thrive even exposed to the full rays of the sun. Plant them

in fibry loam and tough and fibry peat, with a liberal admixture of leaf-mould and well-decayed woody matter, to which add a thin top-dressing of similar material every autumn. The evergreen Polypodiums associate well with flowering plants that do not require frequent removing, and they may be made to cover bare spaces beneath trees, or to overrun stumps. A beautiful effect, too, is got by their use as a carpet or setting to some of the plants

Oak Fern (*Polypodium dryopteris*).

in the rock garden. Besides *P. vulgare* and its varieties, there are several deciduous kinds, such as *P. dryopteris* (Oak Fern), of which *P. d. plumosum* is the best form, and *P. phegopteris* (Beech Fern), well known to all Fern lovers. They thrive best in peat, loam, and sharp sand, with some broken lumps of sandstone, and prefer a dry situation in the rock garden, or any situation which is not fully exposed to the sun. A slightly shaded spot should be selected, where they might be planted among flowering plants suitable for the same treatment and affording the needed shelter. *P. Robertianum* (Limestone Polypody) is a beautiful deciduous species somewhat difficult to manage; it should have a dry sheltered position, does not mind sunshine, and prefers a mixture of sandy and fibry loam, with a plentiful addition of pounded limestone. *P. alpestre* resembles the Lady Fern, with fronds dark green, and sometimes exceeding 2 feet in length. It may with advantage be grouped with Lady Ferns, as it flourishes under similar treatment. *P. hexagonopterum*, a native of N. America, is hardy in sheltered positions, and has elegant tapering dark green fronds about 1 foot in height.

PONTEDERIA (*Pickerel Weed*).—*P. cordata* is one of the handsomest water plants, combining grace of habit and leaf with beauty of flower. It forms thick tufts of almost arrow-shaped, long-stalked leaves, from 1½ to over 2 feet high, crowned with spikes of blue flowers. *P. angustifolia* has narrower leaves. Both should be planted in shallow pools of water. Division of tufts at any season. N. America.

POPULUS (*Poplar*).—Usually forest trees of northern and temperate countries, often of rapid growth, mostly hardy in our country, some giving very fine effects in the landscape, and others of value in wet woodlands. Among the best are the white, or the Abele Poplar (*P. alba*), and its variety *Bolleana nivea*, which is whiter in the foliage than the wild tree; the great *P. monilifera* of N. America, grown under various names in our gardens, and the most rapid grower of Poplars; the Balsam Poplar (*P. balsamifera*); Fremont's Poplar (*P. Fremonti*); *P. grandidentata*; *P. heterophylla* of N. America, of which there is a pendulous variety; *P. laurifolia* of Siberia; the Black Poplar (*P. nigra*), a native tree which has one or two varieties, one the Lombardy Poplar; *P. Sieboldi* of Japan; *P. Simoni* of China; *P. suaveolens* of N.W. India; *P. tremuloides* of N. America, and *P. trichocarpa*, one of the finest, and *P. lasiocarpa*, a native of C. China, with large and handsome leaves: a tree for the moist woodland, hardy, and of promise for our British woods.

The true Aspen is one of our native trees we may see here and there wild, in woodland places, often grouping itself very prettily. I know nothing more attractive than a group of the Aspen by the waterside or in almost any position. In Ireland, and on warm limestone soils elsewhere, the leaves

become a lovely colour in autumn, but not on cold soils.

PORTULACA (*Purslane*).—This bright little annual, *P. grandiflora*, has been introduced many years from its native home in Chile, and few Chilian plants have spread so widely all over the world. It seems as happy under a tropical sun as in an English garden, where no other annual excels it in brilliancy, delicacy, and diversity of colour. It is at home as well on a dry, poor bank as in a rich border among taller things. One can see by its growth that it is a child of the sun, and that is why one finds it so fine in gardens in the parched plains of India and Egypt, as well as throughout N. America. The seed is best sown in light soil, and only just covered. In planting out, choose the sunniest and warmest spots in the garden.

POTENTILLA (*Cinquefoil*).—A large family, many hardy herbs and alpine flowers among them. The most important are the fine hybrid varieties got by crossing showy Himalayan species such as *P. insignis* and *P. atro-sanguinea*, a form of *P. argyrophylla*. These two species are well worth growing. The first has clear yellow and the other has deep velvety crimson flowers. Other useful tall-growing kinds are *glandulosa* from California, a good plant for very dry places, where the large golden flowers come freely for several weeks during the hottest weather. It is fully hardy, and with leaves deeply cut. Other plants for just such a position are *P. hippiana*, with large leaves of a decided grey, and *P. crinata*, with silvery-white leaves, the flowers bright yellow in both kinds. One of the best, however, is *P. nepalensis* (or *formosa*), from the Himalayas, with stems of 18 inches, and fine bright red flowers shading to crimson. The most brilliant of all, however, is Gibson's Scarlet, than which no member of the race has flowers of so dazzling a scarlet. It is also very profuse and quite an indispensable.

Among the dwarf alpine species there are some very beautiful plants for the rock garden. Of these the following are the best :—

P. ALBA (White Cinquefoil).—The leaves of this pretty plant from the Alps and Pyrenees are quite silvery, and have a dense silky down on the lower sides. It is very dwarf, and not rampant ; its white Strawberry-like flowers nearly 1 inch across, with a dark orange ring at the base. Easily grown in ordinary soil ; blooming in early summer. Division.

P. ALPESTRIS (Alpine Cinquefoil).—Closely allied to the spring Potentilla, forming tufts nearly 1 foot high, with bright yellow flowers about 1 inch across. Though not common, it is found on rocks and dry banks, in several parts of the country. A more vigorous form of this plant, from the central and southern Pyrenees, is *pyrenaica*, with larger flowers of a deeper yellow.

P. AMBIGUA.—A dwarf compact creeper, with in summer large clear yellow blossoms on a dense carpet of foliage ; is perfectly hardy, requiring only a good, deep, well-drained soil in an open position in the rock garden. Himalayas.

P. FARRERI.—Is a free flowering good kind.

P. FRUTICOSA (Shrubby Cinquefoil).—A pretty neat bush, 2 to 4 feet high, bearing in summer clusters of showy golden-yellow flowers. It is suited for the rock garden or the dry bank. Its variety *humilis* is a tiny miniature, of charming effect in the rock garden, and the form *davurica* (perhaps a hybrid) is quite prostrate.

P. NITIDA (Shining Cinquefoil).—A beautiful little plant from the Alps, a couple of inches high, its silky silvery leaves seldom with more than three leaflets each. The flowers are pretty and delicate rose.

P. TRIDENTATA.—A spreading carpet-like plant from N. America, rarely rising above 4 inches, its dark evergreen foliage prettily spangled with white flowers in June and July. It does best in a moist, fairly rich place, and will bear partial shade. Easily increased by division.

P. VEITCHI.—Finer in every way than *P. fruticosa*, *P. Fredrichseni*, and the few others of fruticose habit, while the flowers are larger and prettier. It grows 3 or 4 feet high, is evergreen, and has handsome sprays of nearly pure white flowers from May onwards.

POTERIUM.—A small group of herbs or shrubby plants of the Rose order, confined to north temperate regions, and worthy of some attention for the rougher parts of pleasure grounds, and for the wild garden, their dense spikes of flower being attractive and useful for cutting. *P. canadense* is a good back-row plant for the border, 4 to 5 feet high, with deeply-cut grey-green foliage and long spikes of creamy-white flowers from the tip of every shoot during autumn. Several plants should be grouped to make a good bush-like mass. *P.*

sitchense is much shorter, rarely exceeding 2 feet, and bearing purplish flowers; this grows best in damp ground. *P. tenuifolium*, with spikes of white flowers, is also worth growing, while *P. Sanguisorba*, or Salad Burnet, is a pretty native plant with green or purple flowers, growing in dry places.

P. OBTUSUM (Japanese Burnet).—From the garden standpoint, this new species is an acquisition. Vigorous habited and attaining 3 feet high, it flowers in July, producing numerous arching branched spikes of rosy-crimson flowers. In cool soil and thin screening shade it is most effective.

PRATIA.—*P. angulata* is a pretty plant for the rock garden, creeping over the soil like the Fruiting Duckweed; the flowers white, and like a dwarf Lobelia, numerous in autumn,

Pratia angulata.

giving place to violet-coloured berries about the size of Peas. It is fairly hardy, and grows best in moist districts, with a mild winter, such as Cornwall, where charming carpets of this little plant are not uncommon in shady places. New Zealand. A second kind, *P. begonifolia*, is from the Himalayas, and is larger in all its parts, with downy leaves and purple berries.

PRIMULA (*Primrose*).—There is so much charm and beauty among Primroses that no garden is complete without them, and there is scarcely a species not worth cultivating. They have a great diversity of habit and growth. Some are at home on the sunny slopes of the rock garden, others in shade, many make excellent border flowers, and a few exotic species are at home in the woodland with our common Primrose. The family contains nearly a hundred different sorts, and we have therefore confined ourselves to the most distinct and desirable kinds. There is so much confusion among certain sections, particularly in the alpine and the Himalayan species, that we have not attempted to deal with these exhaustively; while others, such as *P. nivalis*, are too little known in gardens to render it necessary for us to speak of them.

P. AMŒNA (Caucasian Primrose) is allied to our common Primrose, but is distinct. The corolla is purplish-lilac in bud or when recently expanded, but turns bluer after a few days, and the blooms come out before the snow has left the ground. It is so much earlier than the common Primrose, that while that species is in flower, *amœna* has finished blooming, and has sent up a strong tuft of leaves very much like that sent up by the common Primrose after its own flowers are faded. It is one of the best plants for the spring garden and the rock garden. Division of the root. Caucasus.

P. AURICULA (Common Auricula).—In a wild state this is one of the many charming Primulas that rival Gentians, Pinks, and Forget-me-Nots in making the alpine fields so exquisitely beautiful. Possessing a vigorous constitution and sporting into many varieties when raised from seed, it attracted early attention from lovers of flowers; its more striking forms were fixed and classified, and it became a "florists' flower." Its cultivated varieties may be roughly thrown into two classes—first, self-coloured varieties, or those which have the outer and larger portion of the flower of one colour or shaded, the centre or eye white or yellow, and the flowers and other parts usually smooth, and not powdery; second, those with flower and stems thickly covered with a white powdery matter or "paste." The handsomest of the first kinds are known by the name of "alpines," to distinguish them from the florists' varieties, and are the hardiest of all. The florists' favourites are distinguished by the dense mealy matter with which the flowers are covered. They are divided by florists into four sections—green-edged, grey-edged, white-edged, and selfs. In the "green-edged" class the throat of the flower is usually yellow or yellowish; this is surrounded by a ring, varying in width, of white powdery matter, and this again by another ring of some dark colour, and beyond this a green edge, which is sometimes ⅛ inch in width. The outer portion of the flower is really a monstrous development of the petal into a leaf-like substance identical in texture with the leaves. The "grey-edged" varieties have the margin of a green leafy texture, but this is so thickly covered with powder that the colour cannot be distinctly seen. The same occurs in the "white-edged" kinds, the difference being in the thickness and

hue of the powdery matter. In fact, the terms "green-edged," "grey-edged," and "white-edged" are simply used to indicate slight differences between flowers having an abnormal development of the petals into leafy substance. It is a curious fact that between the white and the grey the line of demarcation is imaginary, for both classes occasionally produce green-edged flowers. The "selfs" are really distinct, since the outer portion of the corolla is of the ordinary texture, though a ring of powdery matter surrounds the eye.

Their culture is very simple, light vegetable soil and plenty of moisture during the growing season being the essentials. In many districts the moisture of our climate suits the Auricula to perfection, and great tufts of it are grown in gardens without any attention. In others it must be protected against excessive drought by stones placed round it, and coco-fibre and leaf-mould are also useful as a surfacing. However, as none but good varieties of the alpine section deserve this trouble, we would prefer, wherever practicable, that they should be placed in the rock garden on spots where they would have some shelter and could root freely into rich light soil. They would cause no trouble beyond taking up, dividing, and replanting. This should be done every second or third year, or as often as they become too crowded or lanky. The very common kinds may be planted as edgings or in beds in the spring garden, but wherever the plant is free, naturally improved varieties should be substituted for the common old border kinds. There are a few good kinds already in the trade, most of them in shades of yellow, such as Alexandra, Celtic King—a very good one—Erin's Queen, Miss Davis, and Yellow Queen—also known as Golden Gem. Purple Bedder is crimson-purple; Chameleon, with yellow, brown, and striped flowers on the same plant; and *Sulphurea* with pale fragrant trusses.

Auriculas are easily propagated by division in spring or autumn, but best in early autumn. They are also easily raised from seed. Seed ripens in July, and is usually sown in a gentle heat in the following January. It should be sown thinly in pans. The plants need not be disturbed till they are big enough to prick into fine rich light soil on a half-shady border. It is most desirable to raise seedlings, as in this way many beautiful varieties may be obtained, and if a desirable variety is noticed, it should be marked, placed under the best conditions, and propagated by division as fast as possible.

HYBRIDS.—*Primula auricula* has been freely crossed with other species, and with excellent results, though many of these hybrids are as yet little known. One of the best is *P. arctotis*, a cross with *hirsuta*, in which, however, the relation to *auricula* is at once apparent. It is a stout little plant, its compact leaves almost hidden in flowers. It is hardy and easy to grow, and one of the earliest to bloom in spring. *P. discolor* is a natural cross between *auricula* and *œnensis*, and probably one parent of our garden Auriculas; *P. Portæ*, with the same parentage, differs from *discolor* in its large wine-red flowers, free of the mealiness of that kind. *P. Gœbelii* is a natural cross with *P. villosa*, bearing brownish-violet flowers, and, like all the other *auricula* hybrids, quite easily

Primula cashmiriana.

grown. A second cross with *villosa*, known as *P. Kerneri*, comes nearer that kind in its covering of dark hairs; the pretty flowers are rosy-lilac with a yellow throat. *P. Peyritschii* is a beautiful cross between *auricula* and *viscosa*, but it comes so near the latter as often to be called *viscosa major*. *P. venusta*, a cross with *P. carniolica*, is a stout little plant of 3 or 4 inches, forming rosettes of glossy leaves and large purple flowers. *P. Balbisii*, with large white-throated golden flowers, is an Auricula in all but name, differing only in its more rounded leaves, quite free of powder. A cross between this and *auricula* has given *P. similis*, a little plant just intermediate, with bright yellow flowers and slightly mealy foliage.

B. BEESIANA.—A new and vigorous growing species from W. China. The rich velvety purple flowers are produced in whorls on strong erect scapes 2 to 3 feet high, the flowers appearing from May to July. It is a plant of fine ornament and constitution and withal a good perennial. Revels in deep rich loam and cool and moist places. In conjunction with *P. Bulleyana* it has given rise to a remarkable race of hybrids equally hardy and vigorous as the originals, in which rose, salmon, and many intermediate shades are found.

P. BULLEYANA.—A mountain meadow species from W. China, where it is said to cover vast areas. As an epoch-marking kind it ranks with *P. japonica* and *P. rosea*, equalling the former in robust constitution, vigour, and simple cultural needs. It revels in rich soils and moisture, and attains to 2½ feet high when well grown. The flowers are produced in whorls on stout erect scapes. Orange-scarlet in bud, buff-orange and apricot tones are revealed as the flowers expand. Seeds are produced abundantly, and if allowed to fall on the moist ground where the plants have flowered, seedlings will appear by the hundred. Splendid for naturalising on a large scale.

P. CAPITATA.—One of the finest of Primroses, it is very distinct as a garden plant, with a tuft of sharply-toothed pale green leaves and dense heads of flowers of the deepest Tyrian purple. It cannot be termed a good perennial, as it is apt to go off after flowering well, and it is well to raise seedlings. This is easy, as the plant seeds freely in most seasons, and the seedlings flower in the second year. An open position with a north aspect in good loamy soil free from lime, and well watered in dry weather, suits it best. Himalayas.

P. COCKBURNIANA.—A new species from the mountains of W. China, and in its orange-red flowers quite unlike anything previously seen in this group. It grows in wet upland meadows at elevations of many thousand feet, forming a tuft of wrinkled leaves not unlike those of our wild Primrose, and slender stems of 12 inches high, with sparse whorls of flowers nearly an inch across. It may become freer in flower under cultivation, otherwise it can hardly be called a showy kind, its great value perhaps being the new colour for our hybridists. Best regarded as a biennial.

P. CORTUSOIDES.—A distinct species bearing clusters of deep rosy flowers on stalks 6 to 10 inches high. Of tall free habit, it is liable to injury if placed in an exposed spot or open border, and should therefore be put in a sheltered position, such as a sunny nook in the rock garden, where it is surrounded by low shrubs, etc., or in any place where it is not exposed to cutting winds, and at the same time not shaded to its injury. It is a charming ornament for the rock garden, for a sunny sheltered border near a wall or a house, or for the margin of the choice shrubbery. The soil should be light and rich.

P. DEFLEXA.—An attractive little plant recently come to us from inland China, where it grows in mountain woods at a great elevation. Its stout scapes rise from a rosette of hairy leaves to a height of 12 or more inches, bearing a dense head of small rosy-purple flowers which point downwards, and thus account for the specific name.

P. DENTICULATA.—A pretty Himalayan Primrose, of robust growth, 8 to 10 inches high. It has large tufts of broad foliage, and produces in spring, on stout erect stems, large dense clusters of lilac blossoms. It is a most variable plant, and some of its more distinct forms have received garden names, of which the principal are mentioned below. It is paler in colour than any of its varieties, and its foliage and flower-stalks are not mealy. An excellent pure white variety is *P. d. alba*. *P. pulcherrima* is a great improvement on the original. It grows from 10 to 12 inches high, and has a more globular flower-truss, which is of a deep lilac colour. The stalks are olive-green, and, like the leaves, are slightly mealy. It is very beautiful when in flower. *P. cashmiriana* is by far the finest variety. The flowers are of a lovely dark lilac, closely set in globe-like heads on stalks over 1 foot high. They last from March till May. The foliage is beautiful, and, like the stalk, is thickly powdered with meal. A new garden-raised variety, Queen of Purples, is very handsome, with large flowers of an intense deep purple.

All the varieties are hardy, though the flowers are liable to be injured by early spring frosts. They may be placed either in the rock garden or in an ordinary border, and will grow vigorously in a deep, moist, loamy soil, enriched by manure. They prefer a shady situation, with a clear sky overhead, and delight in an abundance of moisture during warm summers. All the forms of *P. denticulata* are admirably suited for grouping or naturalising in cool moist woodland spots, and for this purpose seedlings should be raised by the hundred. Sow the seeds as soon as ripe, preferably on damp or moist soils, in which the plant revels. On consistently moist soil the seedlings virtually carpet the ground in a short time if sown as soon as ripe, and, while growing more vigorously, cost nothing for the raising.

P. DEORUM.—A rare plant from the mountains of Bulgaria, growing in damp grassy places just under the snow-line. Its leaves are rather fleshy, forming a tufted rosette, from which springs a stout stem of 8 or 9 inches with a massive truss of violet-purple flowers. It is hardy on the

north side of the rock garden, thriving in sandy loam and in a moist position, such as the foot of a broad flat stone, which gathers the rain and conducts it to the root. It should be shielded from heavy winter rains by a tilted pane of glass.

P. FARINOSA (Bird's-eye Primrose).—A pretty native Primrose with small rosettes of silvery leaves; the flowers, borne in a compact umbel in early summer, are lilac-purple with a yellow eye. They vary a little in colour, there being shades of pink, rose, and deep crimson. In our gardens

Primula farinosa (Bird's-eye Primrose).

it loves a moist vegetable soil, and in moist and elevated parts of the country it flourishes in the rock garden and in slightly elevated beds without any attention; but in most districts more care is necessary. In the rock garden it thrives in a moist crevice, filled with peaty soil or fibry sandy loam. In the drier districts it would be well to cover the soil with broken bits of sandstone to protect the surface from being baked and from excessive evaporation.

P. FORRESTII.—A remarkable species from the Alps of Yunnan in China. The rich golden-yellow flowers are produced in drooping clusters, and, in common with the foliage, possess the fragrance of ripe fruit. Though of high ornament, it is unfortunately not hardy in the open in England.

P. FRONDOSA.—A plant of the Balkans, and related to the common Bird's-eye (*P. farinosa*), but with larger leaves of a different shape, and larger rosy-purple flowers during May and June. The plant is thickly covered in all its parts with a fine white powder.

P. GLUTINOSA.—A distinct little Primrose, rare in gardens. On mountains near Gastein and Salzburg, in the Tyrol, and in Lower Austria, it flourishes, in peaty soil, at a height of 7,000 to 8,000 feet. It is 3 to 5 inches high, bearing one to five blossoms of a peculiar purplish-mauve, with divisions rather deeply cleft. Suitable for the rock garden, or for pots in moist peat or very sandy soil. It should be grown in clusters, being almost certain to die out if isolated. Similar to *P. glutinosa* are *P. tirolensis*, *Flœrkiana*, *Allioni*, and others, all natives of the Alps.

P. INTEGRIFOLIA.—A diminutive Primrose, easily recognised by its smooth shining leaves, which lie quite close to the ground, and by its handsome rose flowers, which are borne one to three on a dwarf stem, and are often large enough to obscure the plant. There is no difficulty in growing this plant on flat exposed parts of the rock garden, if the soil be firm, but moist and free. The best way is to form a wide tuft, by dotting six to twelve plants over one spot, and in a dry district scatter between them a few stones or a little cocoa-fibre mixed with sand, so as to prevent evaporation. *P. Candolleana* is another name for this plant. *P. glaucesens*, *spectabilis*, *Clusiana*, and *Wulfeniana*, all natives of the Alps, are of a similar character. Division or seed. *P. Heerii* is a wild cross between this kind and *P. hirsuta* found in Switzerland; it makes neat low tufts bearing loose clusters of purple flowers.

P. INTERMEDIA.—A charming hybrid between *P. ciliata* and *P. auricula*. In habit it closely resembles some of the dwarf alpine Auriculas, and its purplish-crimson flowers have a conspicuous yellow eye, and are borne on stout erect scapes. On sheltered portions of the rock garden its richly-tinted blossoms are seen to advantage. It is delicately fragrant.

P. JAPONICA.—A handsome Primrose whose true home is in moist shady spots or wet ditches, where in rich loam it grows vigorously, throwing up flower-stems 2 feet or more, and unfolding tier after tier of its crimson blossoms for several weeks in succession. It may be grown in the rock garden, and is an excellent water-side plant, thriving almost anywhere and sowing itself freely. Given congenial conditions self-sown seedlings appear in their hundreds beside woodland walks or like places, where uniform coolness or moisture is not unknown, and the fact should drive home the lesson to every gardener who

wishes to succeed with one of the best and most amiable species of the genus. Coddling the seeds in pans in frames is a mistake. Sow them when ripe in the cool moist places in which the species delights, and for once let Nature be the teacher.

P. Juliæ.—A dwarf early-flowering, deciduous, amiably-disposed species of carpeting habit. The rosy-crimson flowers issue from the rhizomes a dozen or so in sessile clusters, presently rising amid the roundish ovate leaves on solitary stems, like the common Primrose, which they approximate to in form and size. Less than 6 inches high, it is a most charming plant, and flowers with great freedom. Rich light loam, leaf-soil, and manure in cool spots. Easily increased by division. Caucasus.

P. latifolia.—A handsome Primrose, with from two to twenty violet flowers in a head. It is less viscid, but larger and more robust than its alpine congener, the better-known *P. viscosa*. Its leaves sometimes attain a height of 4 inches and a breadth of nearly 2 inches, and it grows to a height of 4 to 8 inches. Its fragrant flowers appear in early summer, and in pure air it thrives on sunny slopes of the rock garden, if it has sandy peat, plenty of moisture during the dry season, and perfect drainage in the winter months.

P. Littoniana.—In a genus rich in beauty and variety no species is more remarkable than this. It is, indeed, unique. Bright red calyces and rich purple flowers are in sharp contrast, and these, in conjunction with the red-tipped, attenuated, spire-like outline of the floral parts, are responsible for an effect suggestive of an Orchid glorified. The scapes are 2 feet or so high, leaves narrow, ascending, woolly, and covered with silvery hairs. Excellent for colonies in the cool parts of the rock garden, or for naturalising on a worthy scale. Quite happy in cool loam and leaf-soil, and seeds freely. From the mountain meadows of W. China. June-July.

P. luteola.—One of the handsomest of the yellow Primroses, and a noble plant when well grown. The flower-stems are often 1½ to 2 feet high, though they are usually under 1 foot in height. They sometimes become fasciated, and thus carry a huge cluster of flowers 4 to 6 inches across. These flowers are like those of a Polyanthus or an Auricula, but they are borne in more compact heads. It likes a moist situation in full exposure, and if put out in rich borders of rather moist soil, or on the lower banks of the rock garden, or in a copse with a good bed of leaf-soil, it will soon repay the planter. Caucasus.

P. marginata.—One of the most attractive of the alpine Primroses, and distinguished by the silvery margin of its greyish leaves and by its soft violet-rose flowers in April or May. It is of the aborescent class and should be catered for as such. When the stems become long, and emit roots above the ground, it is a good plan to divide the plants, and to insert each portion firmly down to the leaves. If this be done biennially the plants will be reinvigorated and will flower in greater freedom. Alps.

P. minima (Fairy Primrose).—One of the smallest of European Primroses. Usually there is only one flower, which is generally rose-coloured, and sometimes white, and appears in summer. The plant is only an inch or so high, but its single flower is nearly 1 inch across, and almost covers the tiny rosettes of foliage. Bare spots in firm open parts of the rock garden are the best places for the plant, but the soil should be very sandy peat free from lime, and must never become too dry. Division or seed. Mountains of S. Europe. *P. Flærkiana* is much like it, and probably is only a variety, since the sole difference is that it bears two, three, or more flowers, instead of only one. It enjoys the same treatment in the rock garden. Austria. Of both kinds it is desirable to establish wide-spreading patches on firm bare spots, scattering half an inch of silver sand between the plants to keep the ground cool.

Primula pubescens alba.

P. Munroi.—This grows at very high elevations on the mountains of N. India, in the vicinity of water. Its smooth green leaves are 2 inches long, from them arising flower-stems 5 to 7 inches high, bearing sweet creamy-white flowers with a yellowish eye, an inch across, from March to May.

P. Palinuri.—This is quite different from other cultivated Primroses, inasmuch as it seems to grow all to leaf and stem, while many of the other kinds often hide their leaves with flowers. In April its yellow flowers appear in a bunch at the top of a powdery stem, and it emits a

Cowslip-like perfume. It thrives as a border plant in light soil. Division. S. Italy.

P. PARRYI.—A pretty Primrose, bearing about a dozen large, bright, purple, yellow-eyed flowers nearly 1 inch across. These flowers are borne on stems about 1 foot high. Though an undoubted alpine, and growing on the margins of streams near the snow-line, where its roots are constantly bathed in ice-cold water, it has succeeded in the open border in moist, deep, loamy soil mingled with peat; it is hardy, and requires partial shade from extreme heat rather than protection from cold. N. America.

P. PULVERULENTA.—For combined stature and flower freedom no modern introduction equals this imposing species from W. China. A true bog plant in nature, it occurs at high elevations in moist open meadows, the moisture suiting it equally in cultivation in lowland gardens, where it will attain to 4 or even 5 feet high. It is valuable also for cool moist spots in any position responding to rich well-manured soils. It seeds as it flowers with great freedom. Seeds if allowed to fall on the wet soil will yield strong seedlings by the hundred.

P. PURPUREA.—A handsome Primrose, with purple flowers borne in heads about 3 inches across. Sheltered and warm but not very shady positions, either in the rock garden or in the open parts of the hardy fernery, will best suit it if the soil is a light, deep, sandy loam, and well enriched with decomposed leaf-mould. It never thrives so well as in nooks at the base of rocks, where it enjoys more heat than it would if exposed.

P. ROSEA (Rosy Himalayan P.) is a bright Primrose, with flowers of the loveliest carmine-pink. Its pale green leaves form compact tufts, and the flower-stems, 4 to 9 inches high, appear in early spring. It is hardy and grows vigorously in almost any soil, preferring, however, a deep rich loam in a moist shady part of the rock garden. Easily raised from seeds it is the most brilliantly flowered perennial kind of its race.

Primula rosea.

P. SCOTICA is a native plant, and requires similar treatment to *P. farinosa.* The flowers, which show in April, are rich purple with a yellow eye, and are borne on stems a few inches high. Native of damp pastures in the northern counties of Scotland. There is also a beautiful pure white form of *farinosa* found upon Ingleborough, but this is very scarce.

P. SECUNDIFLORA.—A vigorous species having the habit of growth of *P. sikkimensis*, but of a rich wine-red colour and greater flower freedom than that kind. The flowers, too, are sweet scented. Full of promise and distinction, quite hardy and of easy cultivation, it should be planted in cool or moist places in rich loamy and vegetable soils where good drainage is present. Easily raised from seeds. June-July. W. China.

P. SIBIRICA.—A pretty little plant of a few inches high, akin to the pale-flowered *P. involucrata*. It carries rather deeply-cut leaves and small clusters of three to five pale rosy-red flowers encircled by long bracts. Arctic regions of Asia and N. America.

P. SIEBOLDI.—This is one of the showiest of the Primulas, and is as easy to grow and as hardy as many others. Since its introduction from Japan numerous beautiful varieties have been raised, some of the most distinct being *Clarkiæflora, lilacina-marginata, fimbriata oculata, vincæflora, cærulea-alba*, Mauve Beauty, Lavender Queen, *laciniata*, and *maxima*. These possess a great diversity of colour, and some have the petals beautifully fringed. This species and its varieties delight in rich soils and moisture, and given these may be grown to perfection.

Primula Sieboldi.

P. SIKKIMENSIS.—This is a beautiful tall Primrose species, herbaceous in our climate, and quite distinct. It throws up strong flower-stems, 15 to 24 inches high, bearing numerous bell-shaped flowers of a pale yellow, and having an agreeable perfume. Some of the stems bear a head of more than five dozen buds and flowers, and each

flower is nearly 1 inch long and more than ½ inch across. It starts into growth in April or early in May, and should have a shady position when in bloom, as its delicate blossoms suffer from cutting winds and bright sunshine. It is hardy, and loves deep, well-drained, and moist ground; but spots in the lower parts of the rock garden near water, or situations in deep boggy places, suit it best. It is readily increased by seeds sown in summer as soon as they are ripe, giving the best results when treated as a biennial. This Primrose is said to be the pride of all the Primroses of the mountains of India, inhabiting

An Alpine Primrose.

wet boggy soil at elevations of from 12,000 to 17,000 feet, and covering acres of ground with its yellow flowers.

P. STUARTI (Stuart's P.).—A noble and vigorous yellow Primrose, about 16 inches high. It has leaves nearly 1 foot long, and many-flowered umbels. A light deep soil, never allowed to get dry in summer, suits it well; but the most suitable place for it is some perfectly drained and sheltered slightly elevated spot in the rock garden. It may be planted against the base of rocks, to shelter it from cutting winds, though, when sufficiently plentiful, this precaution is unnecessary. Mountains of India.

P. SUFFRUTESCENS.—A plant growing in small tufts on the heights of the Rocky Mountains, with narrow spoon-shaped leaves and large flowers of rosy-purple with a yellow eye, carried in small clusters during April and May. It is best in a sheltered and well-drained niche of the rock garden.

P. VILLOSA.—A lovely little Primrose. The leaves have close-set teeth, and are covered with glandular hairs, and are viscid on both sides. Its flower-stems, also viscid, barely elevate the sweet blooms above the foliage. It is well adapted for the rock garden, in which it may be grown in any position, but it requires light, peaty, or spongy loam, about one-half being fine sand, and its roots should be kept moist during the dry season. It is easily increased by division, and may be raised from seed. Varieties are sometimes, but rarely, found with white flowers. It is sometimes grown under the name of *P. viscosa*. It is of very easy culture, and may be grown either in pots or in the rock garden, a light free soil, and plenty of water during the warm season. It flowers in April and May. Alps. Similar to *P. villosa* are *P. ciliata, Steini, hirsuta, pubescens, rhætica, pedemontana, œnensis,* and *Dinyana,* charming little species from the Alps. All thrive under the same conditions as *P. villosa.*

P. VISCOSA.—A plant of the granite soils of the Alps and Pyrenees, and so near *P. villosa* that the two are often regarded as one, though kept distinct by botanists. This differs mainly in the longer tube of the flowers and their longer stems, though there are other small differences. It develops a thick stem of several inches high, often branched like a tiny shrub. The leaves are large, covered with hairs, and fringed at the

edges, and the flowers, which come in large bunches during April and May, are of rosy-lilac with a white centre. The plant is easily grown in peaty soil between sandstone rocks, but it objects to chalk or strong limestone soils. It has been freely used in crossing with other kinds, especially *P. auricula*.

P. WINTERI.—The genus contains nothing more exquisite than this lovely Himalayan kind, albeit it is not a general success and requires the protection of the alpine house or miniature caves or recesses in the rock garden which would protect it from wet and frost. Lowly habited like our common Primrose, and with grey-green leaves covered with a whitish meal, the florin large, clear mauve, white-eyed flowers are freely produced on well-grown plants.

P. VULGARIS (Common P.).—Of all the Primula family, none excel our native Primroses in loveliness.

In some places the Common Primrose varies a good deal in colour. Some of the prettiest of the wild varieties are worthy of being introduced into shrubberies and copses. For shrubberies and by woodland walks single varieties will always prove more useful than the old double kinds, because more vigorous in spring after the flowering period. Named or distinct varieties are readily increased by division or by seeds, which are produced in abundance. As soon as they are parted, plant them in the kitchen garden or in some by-place. The more rich and moist the soil the better they will grow, especially if the position be a half-shady one. Good varieties are: Cecil Rhodes, dark ruby-red, the best of its class; Evelyn Arkwright, only differing from the wild kind in its immense flowers, 2 to 2½ inches across; Miss Massey, dark maroon-crimson with a golden eye; Munstead Early White, white with a golden centre, early in flower; Novelty, large flowers of a pretty tender green shade; Oakwood Blue, a good blue kind, which in turn has given other shades known as Wilson's New Blue Primroses.

Primrose Munstead Early White.

The forms most precious for the garden are the beautiful old double kinds. No prettier flowers ever warmed into beauty under a northern sun than their delicately-tinted little rosettes. Once they were in every garden, but the day came when, like many hardy flowers, they were cast aside to make way for gaudier things. The best known and most distinctly marked are the double lilac, double purple, double sulphur, double white, double crimson, and double red. The double kinds are slower in growth and more delicate than the single ones, and require more care, and the development of healthy foliage after flowering should be the object of those who wish to succeed with them. In the

double kinds the deeper the hue the less robust the plant. The rich crimsons and the deep purples are usually most difficult to cultivate, but in the extreme north, where the climate is at once moist and temperate, they grow almost with luxuriance. Increased by division preferably after flowering.

The Rev. P. Mules, a good grower of the Double Primroses, wrote to the *Field* about them: "Unless these flowers have been seen at their best, and that can only be under the favourable conditions of suitable soil, pure air, and great experience in culture, no one can imagine their beauty. I have had a bed of fifty plants of the double white carrying at one time 4,000 fully expanded blooms, averaging 1⅝ inches in diameter. So also Pompadour, with blooms of still larger size, which has flowered without intermission since October, throwing its rich crimson blossoms well above the succulent green foliage, and presenting a fine picture of form and colour. Then we have double rose, double mauve, double dark lilac, double cerise, double sulphur, double yellow, and double rose white mottled. Besides these are some bright crimsons, making a combination of colours which lend themselves to many varieties of garden and house decoration. Some—the sulphur and the dark lilac—occasionally throw up corymbose heads Polyanthus-wise; but this is not uncommon with many Primroses, and is the result of high cultivation, and occurs towards the end of the flowering period. The reason that the rarer varieties are difficult and expensive to obtain is because their culture is not understood, and stocks once allowed to die out can scarcely be replaced. Their reproduction, as they have no seed, is impossible, and one has to depend on division alone for their increase.

"The secret of growing double Primroses differs little, if at all, from that of the more delicate perennials, two points being specially to be observed—protection from cutting and strong winds, and that they be grown together in beds massed, not dotted through the herbaceous border."

"Bunch" Primroses.

THE POLYANTHUS.—There have been lately raised some varieties, a good deal larger in their parts than the type, and these are very easy of culture and very vigorous. There are very few, if any, double varieties, but some varieties are curious and interesting from the duplication of the calyx or corolla; these are popularly known as "hose-in-hose" Polyanthus. They

grow with the same facility as the others.

Where soil is prepared for the choicer varieties, any good loam with a free addition of sand, well-rotted leaf-mould, and decomposed cow manure will form an admirable compost. The Polyanthus may easily be raised from seed, which should be sown as soon as ripe, say about the end of June. It will also grow well if the seed is not sown till the following spring, but by sowing immediately nearly a year is gained. With choice kinds it is better to sow the seed in pans or rough wooden boxes, but for ordinary purposes a bed of finely-pulverised soil in the open air will suffice. Sowings in early spring are better made in pans or rough shallow boxes, placed in cold frames, as time will be gained thereby.

PRUNELLA (*Self-heal*).—This handsome and vigorous plant *P. grandiflora* is readily distinguished by its large flowers. There is a white and a purple variety, both handsome plants, thriving in almost any soil. In winter they are apt to go off on the London clay, at least on the level ground, but are well suited for mixed borders, banks, or copses. *P. Webbiana* is a good garden form, making a thick green carpet, with spikes of rosy-purple flowers. Europe.

PRUNUS (*Plum, Almond, Peach, Apricot, Cherry, Bird Cherry, Cherry-Laurel*).—Bentham and Hooker in the "Genera Plantarum" united under Prunus the whole of the species which had at an earlier date been known under one or other of the following names: *Amygdalus, Persica, Armeniaca,* Prunus, *Cerasus, Padus,* and *Lauro-cerasus.* This arrangement, which was necessary from the fact that no well-defined line could be drawn between them, has given rise to some confusion. And we may see in consequence two Apricots, maybe, growing side by side, the older one called *Armeniaca,* the newer one Prunus. In the following notes the whole of the species dealt with are considered as Prunus and are arranged alphabetically; and some, not of much garden value, or those not hardy in Britain, are excluded.

P. ACIDA.—One of the species from which the Cherries of gardens have been derived; small, dark green, shining leaves of firm texture and nearly glabrous. A variety is *semperflorens,* of drooping habit, and bearing white flowers (sometimes double) from May to September, and often carrying flowers and fruit. A dwarf tree, usually grafted standard high.

P. ALLEGHANIENSIS.—Usually a shrub from 4 to 6 feet high, but sometimes a small tree three or four times that height. The flowers, ½ inch across, at first pure white changing to pink, are followed by handsome fruits, which are blue-purple, nearly globular, and valued for preserving. Pennsylvania.

P. AMERICANA (Wild Red Plum).—A handsome tree found in North America to the east of the Rocky Mountains, and one of the hardiest. It is a tree 20 feet or more high, of graceful habit, bearing at the end of April or the beginning of May many pure snowy white blossoms; fruits red or yellowish-red, the species being cultivated in the United States on their account.

P. AMYGDALUS (the Common Almond).—One of the earliest of trees to bloom, and reaching its best before hardy trees have done more than show signs of reviving life. There are several named varieties in cultivation: *Amara* (Bitter Almond).—flowers slightly larger than those of the common Almond, petals almost white towards the tips, deepening into rose at the base. *Dulcis* (Sweet Almond).—This has leaves of a grey-green colour, and is one of the earliest to flower. *Macrocarpa.*—This is a strong-growing tree with larger, broader leaves than the type; the flowers, too, which are rose-tinted white, are larger. This tree is hardy and vigorous in our country.

P. ANGUSTIFOLIA (Chickasaw Plum).—In Britain this is a shrub 4 to 6 feet high, but in America it is a small tree 20 to 25 feet high; the leaves 3 inches long; flowers in clusters of one or two pairs, white, sometimes with a creamy tint, one-third of an inch in diameter. Several excellent varieties of this plum are grown in the United States for their bright red fruits, and there are variegated forms cultivated in Europe. *P. Watsoni* (Sand Plum) is a form of this, reaching about 6 feet in height, with twiggy, much-spined branches and abundant sweet white flowers in May. The orange-coloured fruits are small, but much valued in the western states of America.

P. ARMENIACA (Common Apricot).—The wild bush of the cultivated Apricot flowers in February or early March, its blossoms being usually of a pinkish-white, but there are varieties with deeper-coloured flowers, and one in which they are double. N. China.

P. AVIUM (the Gean).—Wild in the British Isles, generally as a tree 50 feet to 60 feet high. This has long been grown as an ornamental tree, and there are three or four good varieties. None is more beautiful than the double form, whose pure white flowers are borne in spring. The var. *decumana* is a striking tree with large

Prunus Davidiana.

leaves, some of which measure 6 inches to 8 inches in length. The var. ***nana*** is a curious dwarf plant; var. ***laciniata*** has cut leaves; and var. ***pendula*** is of weeping habit. The fruit is sweet or bitter (not acid).

P. BESSEYI (Western Sand Cherry).—A fine dwarf form of *P. pumila*, the wild Cherry of the Rocky Mountains. It is as yet little known in our gardens, but will make a pretty bushy shrub for dry places in poor soil. The foliage is an ashen grey, the flowers white in clusters of two to five, and the fruits cherry-red on short stalks.

P. CERASIFERA (the Myrobalan).—The showiest of all the Plums, flowering whilst the leaf-buds are as yet mere tips of green, the flowers three-quarters of an inch to 1 inch in diameter, in clusters on the short twigs; tree round-headed and of spreading habit, 20 feet high. *Prunus Pissardi* is a variety of this species (var. ***atro-purpurea***, the purple Myrobalan), a variety of Persian origin. Its white blossoms are followed by the beautiful red-purple young leaves, which assume their richest tints when just opening and in late summer and autumn. It fruits in favourable seasons, the fruits being coloured like the leaves, even when young.

P. CERASUS (Wild Cherry).—A native of Britain, and usually a small tree or even a shrub, bearing its pure white flowers in spring. It is the double-flowered varieties, however, that give this kind its chief value in gardens. A very old and beautiful Cherry is the variety known as ***persiciflora***, the flowers of which are double and tinged with rose.

P. CHAMÆCERASUS (Siberian Cherry).—A dwarf Cherry, the blossoms white, three-quarters of an inch in diameter, appearing in May.

P. COMMUNIS (Common Plum).—This species is believed to be the source from which the cultivated Plums have been derived, although in a less degree the Bullace (*P. insititia*) and the Sloe (*P. spinosa*) have each most probably a share in their origin. It has, however, some value as an ornamental tree, and reaches a height of 15 to 20 feet, the flowers white. Of the varieties cultivated as ornamental trees, var. ***pruneauliana*** is perhaps the most beautiful. It bears in April many white flowers, not large, but so thickly borne as to cover the twigs. There is also a double-flowered form of this variety.

P. CORNUTA (Himalayan Bird Cherry).—The Himalayan form of our Bird Cherry. Its leaves are as a rule larger, broader, and of stouter texture than those of our British trees; they are also distinct in having red stalks.

P. DAVIDIANA.—The earliest of all the Peaches to bloom, in mild winters as early as January. Its branches are of somewhat erect growth, the flowers individually 1 inch across and completely covering the shoots made the preceding

year, which are frequently 2 feet long. The petals in one form (*alba*) are of a pure white; in the other (*rubra*) pink, but not so freely borne.

P. INSITITIA (Bullace).—A small tree, often wild in hedgerows, which bears its white flowers in pairs during March and April; its black fruits are ripe in October. There are several varieties, amongst which may be mentioned that with double flowers, another with yellowish-white fruits, and a third with red fruits.

P. JACQUEMONTI. — A pretty shrub, native of N. India, where it is found at altitudes from 6,000 to 12,000 feet, with flowers of a bright rosy pink, about half an inch across, and borne in great abundance on the growths of the previous summer. The Chinese *P. humilis* is nearly related to this.

P. JAPONICA (Double Chinese Plum).—This is one of the most lovely of spring-flowering shrubs. The single form probably not in cultivation; the double one

Prunus japonica.

has white flowers with a more or less rosy tint, some, indeed, of a distinct rose colour. It can be struck from cuttings, but it is better to layer the shoots of an old plant. In that way nice flowering plants can be obtained in two years. Grafted plants neither grow nor flower so well, and a constant watch has to be kept for suckers. Syn., *P. sinensis*.

P. LAURO-CERASUS (Cherry Laurel).—A noble evergreen tree often overplanted and misused, and where this is so, Cherry Laurels have to be continually cut back to keep them within bounds, and their hungry roots prevent the cultivation of better things anywhere near. Several varieties are in cultivation, the best of which are *colchica*, *caucasica*, and *rotundifolia*, all with broader, larger leaves than the common Laurel and preferable to it on account of their hardier constitution. *Salicifolia*, *angustifolia*, and *parvifolia* are narrow-leaved varieties, the last being often grown under the name of *Hartoghia capensis*. A new variety from the Shipka Pass (*shipkaensis*) is said to be the hardiest of all.

P. LUSITANICA (Portugal Laurel).—A noble evergreen rarely seen in its full beauty, because it is nearly always choked with other things in the shrubbery. It is as a group, and allowed full freedom of growth, that its value both as a winter and summer shrub is seen, though like the Cherry Laurel it is often overplanted. Var. *myrtifolia* has smaller leaves than the common forms, and its branches are of more erect growth. Being dwarfer, it is also better suited for shrubberies. Var. *azorica* has much larger leaves, and fewer but larger flowers on the raceme. Spain, Portugal, and the Azores.

P. MAHALEB (Mahaleb). — None of the European Cherries surpass this in its springtide beauty. The Mahaleb is a native of Central and Southern Europe, perfectly hardy in England, reaching a height of 20 to 30 feet, of free graceful growth. Especially is this the case with the variety *pendula*, which, although not strictly weeping, is of looser, laxer habit than the type. The leaves are each 2 inches long, and the pure white flowers appear in rather flat racemes in May.

P. MARITIMA (American Beach Plum).—A very handsome bushy shrub, new to British gardens. Its beauty is the great profusion of its early flowers, but the purple or yellow fruits, covered with a dense bloom, though rather small, are edible. A good kind for sandy shore lands.

P. MUME.—Under the hands of Japanese cultivators this has varied into numerous forms, and there are now at Kew varieties with flowers red and white, single and double, as well as one of the pendulous habit. The wood resembles that of the common Apricot. The plant is leafless at the time of flowering. It has been in cultivation for some years, both here and on the Continent, but disguised under other names, one of which is *Prunus Myrobalana fl.-roseis*. Corea.

P. NANA (Dwarf Almond).—This, a native of Southern Russia, is one of the dwarfest of the Almonds, being from 2 feet to 5 feet high. It flowers during March and April when the leaf-buds are only beginning to burst, the flowers being of a lively rose colour and about three-quarters of an inch

across. The leaves are narrow, smooth, dark green, and glossy. It is a charming shrub, and can be easily and quickly propagated by layering. This species will thrive in a dry situation better than most Almonds. There is a pretty double form.

P. NIGRA (Canadian Plum).—This is a hardy tree bearing a good crop of large, pure white and sweetly scented flowers 1¼ inches across. The fruits are oval, 1 inch long and in colour red.

P. PADUS (Bird Cherry).—This beautiful tree, a native of Britain as well as of North and Central Europe and Asia, is often 40 feet high, the flowers being borne in drooping racemes, in the commonest form being 4 inches to 6 inches long. There are varieties, however, finer both in the flowers and racemes. The common Bird Cherry is a tree rather for the park and woodland than the garden proper, but the Manchurian and double-flowered varieties fully deserve a place among flowering trees.

P. PENDULA (Rose-bud Cherry).—A beautiful Japanese Cherry and one of the earliest to come into flower, commencing usually towards the end of March. Its pendent growth has led to its being commonly worked on stocks 5 to 6 feet high, but it comes true from seed. The leaves are much like those of the common Cherry, the flowers of a lovely shade of soft rose and borne in profusion. In the United States, where the summers are much hotter, it thrives better than in England, and it should, if possible, be planted in a sunny spot sheltered from the north and east Syn., *Cerasus pendula*.

P. PERSICA (Peach).—Although neither so free-growing nor so hardy as the Almond, the Peach in various forms is beautiful, and in positions sheltered from the north and east ought to be planted freely. There are now varieties at the service of the planter, chiefly single and double forms, with white or red flowers. One of the best of these is *camelliæflora*, with large single or double red flowers. There is also one with purple foliage known as *foliis rubris*, this colour extending also to the fruit. The double Peaches are often very handsome in warm valley soils. Best from seeds or layers, the grafting on the plum leading to death or disease.

P. PROSTRATA (Mountain Cherry).—A rare species, and one of the most lovely of the dwarf Cherries, a native of the mountains of the Levant, and, although not strictly prostrate (at least in cultivation), is a low spreading bush, the long, slender branches arching outwards and downwards to the ground. The flowers, borne on very short stalks, are of a beautiful lively shade of rose, are half-an-inch to three-quarters of an inch across, and so plentiful as to almost hide the branches.

P. PSEUDO-CERASUS (Japanese Cherry).—This is the tree whose flowering marks one of the epochs of the year in Japan. In the forests of N. Japan this species becomes a large timber tree, but in England it is not often seen above 20 feet high, and it is the double-flowered varieties that are cultivated in England. They are of various shades of rosy white, and are known under such names as *Cerasus Watereri*, *C. Sieboldi*, etc. More so perhaps than any other are these double-flowered Cherries worth extensive planting, never failing to flower, being of surpassing beauty and perfectly hardy. They should be grown on a cool, moist bottom, and the effect they produce in spring is all the greater if room can be afforded for a grove of a dozen or so trees with a backing of Holly or other evergreen.

P. SERRULATA.—A native of Japan, and can be recognised by its peculiar mode of branching. The main stem is erect for a few feet, but then branches off almost horizontally into three or four divisions, and henceforth ceases to send up a defined lead. It is picturesque, representing one of the modes of growth we have come to regard as essentially typical of Japanese tree vegetation, and its rosy-white double flowers come about a fortnight later than in the common Japanese Cherry. The single-flowered form is not in cultivation.

P. SIBIRICA (Siberian Apricot).—A pretty little shrub now becoming better known in gardens, where it is valued for its early white or pink flowers carried in profusion.

P. SIMONI.—Has leaves of about the same size as the common Almond, but the tree itself is of more erect habit and frequently resembles the Lombardy Poplar in form of growth. The flowers are white, and appearing in February and March. Its fruit is deep purple, and ripens early. China.

P. SPINOSA FLORE-PLENO (double Sloe or Blackthorn).—This flowers at the same time as the Sloe, its blossoms white, about half an inch in diameter, and not perfectly double, the centre of the flower containing a cluster of stamens. The flowers are thickly crowded on the short spiny branches, the black colour of which serves to show off more vividly the beauty of the flowers. It is one of the most charming of March flowering shrubs. There is a neat garden form in which the leaves are a dark purple colour, like that of *P. Pissardii*.

P. TOMENTOSA.—A pretty and very distinct little Cherry from China and Manchuria, its dense crown unlike other kinds, and of beautiful effect. The pink flowers come just before the hairy leaves, solitary or in pairs, and with very short stalks. The round fruits, set close against the branches, are a pretty bright red.

P. TRIFLORA (Japanese Plum).—More

commonly grown in American gardens than with us, and mainly valued for its fruits. These are not equal to our orchard plums, but are very abundant, of fine appearance, and keep well, and the trees are singularly free of disease.

P. TRILOBA FL.-PL.—Perhaps the most lovely of all the dwarf Prunus, it is a native of China and was introduced by Fortune. The flowers are at their best in early April, and each one measures 1½ to 2 inches in diameter. On first opening they are of a lovely shade of delicate rose, changing with age to an almost pure white. It is hardy and will thrive as a bush in the open, although not so well as on a wall. The same applies to the double-flowered variety, which for forty years has been in our gardens. Within the last year or two, the single-flowered wild type has been introduced. It has smaller rosy-white flowers, and leaves, of the same shape as Fortune's plant, but smaller.—W. J. B.

PTERIS (*Brake*).—The Bracken Fern (*P. aquilina*), the only thoroughly hardy species of this genus, is generally so common as not to need cultivation. In introducing it where it is scarce, to transplant it successfully large sods containing the strong creeping roots must be dug up, and planted in light soil; if peaty, so much the better. In very mild localities such species as *P. cretica* and the elegant *P. scaberula*, from New Zealand, sometimes thrive in sheltered nooks.

PTEROCARYA (*Winged Nut*).—Walnut-like trees of fine stately form of leaf and habit, *P. caucasica* being hardy in our country, at least in the southern and warmer parts. There are good trees at Claremont and other places, and one in Hyde Park. The foliage is very glossy and large. The tree is a vigorous grower, and should not be planted near shrubs or other plants we wish to have a fair chance. The trees are natives of temperate countries in Asia, and their number is likely to be added to as soon as more of China, Mongolia, and countries near are opened up. The Caucasian is the best known species—others are: *rhiofolia*, Japan, *stenoptera*, China, and *Delavayi*, Yun-Nan.

PTEROSTYRAX.—*P. hispidum* is a Japanese shrub, and quite hardy enough for culture as a bush. It makes a capital wall shrub, being rapid in growth, handsome in foliage, and very beautiful in flower. The leaves are heart-shaped, about 6 inches long and 3 inches broad, the small white flowers borne very freely in drooping clusters about the end of July. Another Japanese species, *P. corymbosum*, is less common, though desirable for walls. Its flowers, which are white or faintly tinged, are in crowded clusters. Both species are 8 to 12 feet high in this country. They are known botanically as *Halesia hispida* and *H. corymbosa*, but ever since their introduction they have been known as Pterostyrax in gardens. Increase by seeds, layers, and soft cuttings.

PUERARIA (*Kudsu*).—*P. thunbergiana* is a remarkable climbing plant of almost tropical vigour, growing up poles, colonnades, and walls to a great height in a very short time. It belongs to the Pea family, and is a plant the Japanese make a great economic use of in various ways, but our main concern with it here is for the flower garden, where it is hardy and useful as a rapid-growing leafy screen. The flowers are a dull violet-purple and very fragrant, but only come towards autumn, when the plant is well established. Increase by seeds, division of the fleshy roots, or by cuttings.

PULMONARIA (*Lungwort*).—These are vigorous and hardy in any soil. Most of them grow well under the shade of trees, and all succeed best in shade. They form dense tufts of foliage, generally handsomely blotched and speckled with white, and make pretty groups in the spring garden, or in semi-wild places, but are worthy of the best places in the flower garden. There are about half-a-dozen kinds, all like each other. *P. officinalis* and *P. angustifolia* are native plants. *P. officinalis* (sometimes called *P. saccharata*) has rosy flowers turning to blue, and *P. angustifolia* bears blue flowers. *P. mollis* is intermediate between the two, and *P. grandiflora* is somewhat similar to *P. officinalis*. *P. azurea* has rich blue flowers. *P. arvernense*, with deep blue flowers, is of refined habit, and well suited to the rock-garden. There is a white-flowered form of it. Chiefly natives of Europe. *P. dahurica* is sometimes called *Mertensia dahurica*.

P. AZUREA.—Flower stems about 8 inches high, flowers a full, perfect blue in bunchy heads, what botanists call a "twin capitale" raceme. Some flowers in the head stand up and some slightly droop. Leaves dark green, no spots, broad, lance-shaped, 8 to 10 inches long, stand up in a

prosperous-looking tuft after the flowers are over. It is very near the rare native *P. angustifolia*, but a good bit better as a garden plant. Flowers in May, and a really good plant.

PUNICA (*Pomegranate*).—Like the Myrtle, the Pomegranate, *P. granatum*, is grown as a wall shrub, the walls of some old houses being covered with it, and it makes a very beautiful covering with its dense mass of tender green foliage. The type has single flowers of a brilliant scarlet, but the best is the double-flowered sort (*flore-pleno*), which is also scarlet, and is that most commonly seen. There is also a yellow-flowered sort and a white or almost white kind (*albescens*) with single and double forms, but these are rare. The flowers are borne freely on the young slender shoots of the previous year's growth, and in pruning these must be left untouched. Increase by cuttings of dormant wood, rooted under glass with some heat.

PUSCHKINIA (*Striped Squill*).—*P. scilloides* is one of the most beautiful of spring bulbous flowers. In its growth it is like some of the Scillas, but its flowers are delicate blue, each petal being marked through the centre with

Puschkinia scilloides.

a darker colour. The flower spikes are 4 or 5 inches high. There are two forms of the plant—the ordinary one and *P. compacta*. *Compacta* is so called from its denser and more numerous flowers, and is therefore the handsomer of the two. The soil should be light and friable, and about 1 foot in depth; and the bulbs planted about 4 inches deep. *P. libanotica* is a taller and more vigorous plant of easy culture and hardy. Shady situations in sub-alpine districts of Asia Minor.

PYRETHRUM.—Vigorous perennial or rock-plants, by far the most important of which is the Caucasian *P. roseum*, which has yielded the innumerable varieties, both single and double, that have now become such popular border flowers. They are showy, hardy, and easy to grow, little affected by sun or rain, and valuable as cut flowers. The blossoms are continually becoming more varied in colour and more refined in shape. Though Pyrethrums are in their fullest beauty in June, they are seldom altogether flowerless throughout the summer; and a succession can easily be kept up by judicious stopping and thinning. They are valuable for autumn decoration, for if cut down after flowering in June, they flower again in autumn. Division, March or April and in July after flowering. Seed. Take the plants up, shake off all soil, pull them to pieces, put them in small pots, and place them in a cold frame for a few weeks until established, but not too close, as they are apt to damp. When established, they may be planted out. A good rich loam suits them best, though they will grow and flower freely in any good garden soil, and the more we incorporate well-rotted manure with the soil the better they grow and flower. Mulching, especially in dry soil, keeps the ground moist and cool. The varieties are so numerous that it is difficult to make a selection, and as they vary from year to year it is best to take them from the catalogues of the day.

P. PARTHENIUM (*Feverfew*).—The golden-leaved variety of this plant (*P. aureum* or Golden Feather) is now common. Of this there are several forms. One is called *laciniatum*, and is very distinct from the older kind. These have their uses in geometrical borders, where they have a bright effect. Their culture is of the simplest. Seed is sown in heat in spring, and the seedlings are pricked off in pans, and when large enough transferred to open borders, and there they withstand the winter unprotected. New plants should be raised every year, as after flowering the second year the old plants lose their neat compact growth.

P. TCHICHATCHEWI (*Turfing Daisy*).—A Caucasian plant, retaining its verdure in dry weather on dry banks or slopes where few plants would nourish; a dwarf creeper, quickly forming a carpet of green. The flowers have white rays and a yellow disc, and in forming turf of the plant in poor dry soils they should be removed, though for the rock garden

of the rougher kind or for borders the flowers have some claim to beauty.

P. ULIGINOSUM (*Hungarian Daisy*).—One of the finest of tall herbaceous plants, and forms tufts 5 to 7 feet in height. These are crowned by lax clusters of pure white flowers, each about twice the size of an Ox-eye Daisy. It is excellent for cutting, and its blossoms are produced late in autumn before the Chrysanthemums come in. It is a stately plant for a rich border, and thrives best in deep, moist, loamy soil. It may be naturalised in damp places. Division. Syn., *P. serotinum*. Hungary.

PYROLA (*Winter-green*). — Little evergreen plants of the northern woods and boggy or sandy places, very distinct and attractive both in leaf and flower.

P. ROTUNDIFOLIA (*Larger Winter-green*). —*P. rotundifolia* is a rare native plant, 6 to 12 inches high, inhabiting woods, shady, bushy, and reedy places. It has leathery leaves, and its erect stems bear long, handsome, and slightly-drooping racemes of pure white flowers, rather like a Lily-of-the-Valley, half an inch across, ten or twenty of which are borne on a stem. They have a sweet scent. *P. r. arenaria* is a very graceful plant, found wild on sandy seashores. It differs from the preceding in being smooth, deep green, and dwarfer, and in having as a rule several empty bracts below the inflorescence. Both the type and its variety are beautiful plants for the shady mossy flanks of the rock garden in free sandy and vegetable soil. They flourish more readily in cultivation than any other species of the family. In America there are varieties with flesh-coloured and reddish flowers, but none of these are in cultivation. *P. uniflora*, *P. media*, *P. minor*, and *P. secunda* are also interesting British plants, and the first-named is very ornamental, besides being very rare. *P. elliptica*, a native of N. America, is also found in our gardens, though rarely. Any of the Pyrolas are worth growing in thin mossy copses on light sandy vegetable soil, or in moist and half-shady parts of the rock garden or the fernery, where they make neat evergreen carpets, flowering in summer. Increase by seeds sown as soon as ripe, or division of the roots in autumn or spring; this last is a work of care, the plants being somewhat averse to disturbance.

PYRUS (*Pear* and *Apple*).—Beautiful flowering trees and bushes of which there is now a bewildering number, since botanists have classed all Apples, Pears, and their allies under the one family. Here it will be convenient to adhere to the old classification, which places Pears under Pyrus, Apples under Malus, Beams under Aria, and Mountain Ashes and Service Trees under Sorbus. No one is likely to confuse one with another, and their names are more easily remembered when so classified. These old genera are now placed as sections of Pyrus. The finest flowering trees are those included under the section Malus, the type of which is the common Crab Apple (*M. communis*). There is a beautiful flowering variety of the Crab Apple called the Paradise Apple, having large handsome flowers, but it is seldom planted for effect, although in common use as a stock for grafting. The Chinese and Japanese Crab Apples include the finest of our small trees that flower in early summer. The Chinese double-flowered Crab (*P. M. spectabilis*) is a lovely tree 15 to 25 feet high, with a wide-spreading head of branches abundantly wreathed with large semi-double delicate rose-pink flowers. It is not often met with, except in old gardens. The varieties of *P. M. baccata* or Berry Apple (so called from its small round fruits) are known as Siberian Crabs. They are graceful in growth, showy in flower, and have highly-coloured fruits, which add much to the beauty of the garden in autumn. The Japanese Crab (*P. M. Toringo*) has beautiful flowers and fruits. The flowers are white and pale pink, and the very small fruits are hung on long slender stalks. Of the Toringo Crab there are now several forms, differing in colour of flower and of fruit. It is a small tree, and is a large-spreading bush if the leaders are removed. The finest of the Eastern Crab Apples is the Japanese *P. M. floribunda*. Fully grown it makes a low tree with a dense wide-spreading head of slender branches loaded every May with a profusion of flowers of a pale pink when expanded, and of a brilliant crimson in the bud, when they are most beautiful. Another new mild kind from C. Asia is *P. M. niedwetzkyana*, known as the Red Apple. Not only are the flowers a deeper red than in any other kind, but the fruits, the bark of the twigs, and even the leaves, when coming and dying away, all carry deep shades of crimson and purple. The N. American Sweet-scented Crab Apple (*P. M. coronaria*) is a lovely little tree with large pink deliciously scented flowers. There are other ornamental Apples in the section Malus, but the foregoing include the finest.

Of the one or two Pears that may be planted for ornament one is *P. Bollwylleriana*, from C. Europe, which produces in spring an abundance of small white blooms in clusters ; and another is *P. salicifolia* (the Willow-leaved Pear), which is well worthy of planting on account of its distinct and beautiful foliage, has leaves of silvery whiteness. *P. olæagnifolia*, or Oleaster-leaved Pear, is another Eastern species with hoary leaves.

Of the *Sorbus* section the common Mountain Ash (*P. Aucuparia*) is a familiar example, but it is too common to need description. There is a kind with yellow berries, another kind with weeping branches, and a third of erect growth. The last is not very ornamental, as the variegation is seldom distinct. Other species worthy of attention are *P. S. americana*, the American Mountain Ash, which is a good deal like our own Mountain Ash ; and *P. S. hybrida*, a tree of very distinct growth, with a dense pyramidal head, and leaves intermediate between those of *P. S. Aucuparia* and *P. Aria* (the White Beam). The true Service Tree, *P. S. domestica*, used to be more frequently planted than now. It is a handsome tree with elegant foliage. Of the White Beam (*P. Aria*) there are some very handsome kinds. Like the Mountain Ash, it is also one of the best trees for planting in exposed places on poor soil, and no tree thrives so well on chalk. Its broad silvery foliage makes it show in the landscape, and it is a valuable park tree. Its allies and varieties include some beautiful trees, such as *latifolia*, with leaves which are broader than the type and quite as silvery. *Hosti* is a good tree, both in foliage and flower. Its leaves are large and silvery, and its delicate rose-pink flowers are in broad flat clusters. It is a Central European tree, perfectly hardy, and about 10 feet high. The Himalayan Beam Tree, *P. vestita*, is extremely fine, but is not hardy everywhere. Its very large leaves are like those of the Loquat, and are of silvery whiteness. Where it thrives it is 20 to 30 feet high.

P. PEKINENSIS is brilliant in colour of leaf and fruit.

P. VILMORINI is a distinct gain to the *Sorbus* group.

PYXIDANTHERA (*Pine Barren Beauty*).—*P. barbulata* is a curious little American evergreen shrub, smaller than many Mosses, flowering in May, rose-coloured in bud, white when open, the effect of the rosy buds and the white flowers on the dense dwarf cushions being singularly pretty : it is plentiful in the sandy dry " Pine barrens " between New Jersey and North Carolina, and often found on little mounds in low but not wet places. It is a charming plant for the rock garden, planted in pure sand and leaf-mould, and fully exposed to the sun. Increase by careful division of old plants, or seeds sown in a cold frame as soon as ripe.

QUERCUS (*Oak*).—Noble evergreen and summer-leafing trees of northern and temperate regions, of whose beauty and value books can give but a feeble impression. If we think of our own stately Oak and its variety of form in different situations, even within the narrow area of our storm-tossed isle, we may perhaps get some idea of the value of the several hundred known species of Oak. The evergreen Oaks, though of vast importance in more temperate countries (I have passed through millions of acres of evergreen Oak in N. Africa alone), are of less value in our cold climate, but we have one precious kind in the Ilex, and other kinds may be grown in the mild parts to a limited extent, especially in seashore districts where evergreen shelter is welcome.

From the point of view of effect, the most noble of the summer-leafing Oaks are the American Oaks, with their fine colour in autumn. No trees have been more talked of, yet why are they so rare in our gardens ? The answer is, I think, because of our ways of procuring them, by plants too old, from nurseries, and, most of all, by the habit of grafting exotic kinds on the common Oak, and neglecting the natural modes of increase, which, in the case of Oaks, is certainly by seed. If we were dealing with plants of a tender nature, for which some hardy stock would be necessary, there might be some reason for this, but it is not so, because these lovely American Oaks inhabit colder regions than our own country, and they are absolutely different in character from ours, some of them living on dry, warm soils, whereas our Oak is usually best, and certainly the timber is best, on soils of a heavy nature. Therefore those who wish to have the American Oaks in their beauty should work from seed sown in the place where we wish

the trees to grow, or raised in nurseries and transplanted early, or purchase young and healthy plants from forest tree nurseries, and in that way secure the vigorous growth of the seedling tree. There should be no trouble in our nurserymen raising good stock from seed of all the more essential and well-known kinds, but acorns from America or other countries should be sown as soon as possible after coming to hand, and it is best to have them packed tightly in moist earth.

As a rule hybrids in this family are not nearly so important as the wild trees, if we except such varieties as occur naturally when we raise the tree from seed. The common European evergreen Oak gives a pretty variety from seed, as, indeed, our wild Oak does, evidence of which we may see in any good Oak district where the trees show a dozen different states of leaf and colour.

It is well that some of the favoured shores and valleys of the world have evergreen Oaks which we may grow in our country, the best known of these being the Ilex of Italy, happily, hardy in our country. It is at home most in seashore districts, and many places both in England and Ireland have fine trees. Old trees give excellent shade and shelter for the flower garden.

With such a great shore-line, the opportunities for growing the evergreen Oaks well are vastly greater than in a Continental country of like temperature. Thickly planted, they are lovely shelter trees for gardens swept by sea winds, as we may see at St Ann's, near Dublin, Holkar, in Norfolk, and Tregothnan, and they are just as good in inland places wanting shelter. Sometimes after very hard winters the trees look as if they were killed, but afterwards throw off the injured leaves and grow happily again. They should be transplanted with the greatest care when young, and the best way is often to raise plants from acorns gathered where the tree grows well, and sown as soon as possible after ripening.

The following list excludes kinds not likely, from their inhabiting warmer regions or other reasons, to be hardy and vigorous in our country :—

Summer-leafing Oaks.

Q. ACUMINATA (Chestnut Oak).—A tall tree with a maximum height of over 150 feet, with grey flaky bark and chestnut-like leaves, shiny on the upper surface and greyish beneath. This should be a very useful Oak in certain soils in Britain supposed to be inimical to our own Oak, Eastern States and Canada, and westwards, in dry limestone soil.

Q. ALBA (White Oak).—A fine forest tree, sometimes 150 feet high, with deeply-lobed but not sharp-pointed leaves, and grey bark scaling off in plates. A native of Canada and the more northern United States, its hardiness need not be doubted, and the wood is hard and tough and good.

Q. CERRIS (Turkey Oak).—This is a valuable tree for garden and park. Though not unlike the common Oak in growth and branching, it is readily distinguished by its deeper green and finely cut foliage, and by its mossy-cupped acorns. It is also much more rapid in growth, and will flourish in light and varied soils. It retains its foliage longer than most other trees, and some of its varieties are almost evergreen. The chief of these is the Lucombe Oak, a tree of graceful growth, which rapidly ascends into a tall cone of foliage and retains its leaves through mild winters. The Fulham Oak is a similar tree of hybrid origin. It is also partially evergreen, and differs from the Lucombe Oak chiefly in its habit of growth being more spreading. The variety known as *Q. austriaca sempervirens* is a form of the Turkey Oak sub-evergreen in character and of medium growth, and useful for small gardens. These varieties rarely equal the wild tree in beauty or character, and have the disadvantage of being increased by grafting, which bars them from ever attaining the stature and dignity of the wild tree.

Q. COCCINEA (The Scarlet Oak).—A forest tree, in its native country growing to 160 feet high, and one of the best N. American Oaks. It is a beautiful tree at all seasons, but particularly so in the autumn, when the rich scarlet and crimson hues of its foliage are very handsome.

Q. CONFERTA (Hungarian Oak).—This is a noble tree in its own country, and one of the quickest growing Oaks in cultivation. It has much larger leaves than the common Oak, and they are cut in much the same way. It is a good Oak to plant as a tree of the future, as it is very hardy and grows well in almost all kinds of soil.

Q. MACROCARPA (Bur Oak).—A large forest tree of a maximum height of 160 feet, with a trunk as much as 8 feet in diameter, and rather large, thin, deeply incised, but blunt-lobed, leaves, shiny on the upper side and whitish below. The timber is good and tough. A native of rich soils from Nova Scotia to Manitoba, and also southwards.

Q. MINOR (Post Oak).—A tall tree, sometimes in its best state 100 feet high, with rough grey bark and deeply incised but blunt pointed leaves. The wood is very hard and durable. N. America.

Q. NIGRA (Water Oak).—A forest tree, though not so tall as other Oaks—80 feet. There is a variety of it in cultivation named *nobilis*, which has leaves 9 inches or more in length of a rich green. It makes a handsome small tree. In wet and swampy ground, E. and W. United States, also southwards.

Q. PALUSTRIS (Pin Oak).—A forest tree with a maximum height of 120 feet. It is one of the quickest growing Oaks, and its chief beauty is the tender green, almost yellow, of the unfolding foliage in May and rich autumn tints. It soon makes a fine tree, and is one of the best to plant in marshy places, as it grows naturally in such ground. Leaves deeply cut, bright green and smooth. N. America.

Q. PEDUNCULATA (British Oak).—Most valuable of British trees, and most beautiful in old age in many different states alike in wood, park, chase, by rivers, and in pasture-land, and one which comes well into the home grounds in its old state, giving noble shade and fine beauty of form, as at Shrubland and in many other places. Botanists give this and the other British Oak under the general term of *Q. Robur*, but they are wrong, as the Oaks are distinct in form and habit.

Q. PHELLOS (Willow Oak).—A forest tree 80 feet high, and unlike the other Oaks in its foliage, narrow and long like that of a Willow and whitish beneath, giving the tree a silvery appearance on a windy day. It is not a common tree, though it was introduced from N. America in the last century. It is of slow growth in cold places and soils, and thrives well and grows rapidly on well-drained light soils, especially in a gravelly subsoil. N. America.

Q. PLATINOIDES (Swamp White Oak).—A large forest tree with flaky green bark, and in its best state reaching a height of over 100 feet, with slightly lobed leaves and the acorns on rather long stalks. It has good, tough, closely-grained wood, and is a native of moist and swampy soils in Canada and west to Michigan.

Q. PRINUS (Rock Chestnut Oak).—Sometimes attains a height of 100 feet, the leaves somewhat chestnut-like, and bearing an edible acorn, in dry soil. Eastern States and Ontario and southwards.

Q. RUBRA (Champion Oak).—A noble forest tree with a maximum height of nearly 150 feet, and one of the finest of American trees, remarkable for the richness of its autumn tints. It is a fine park tree, and also makes a beautiful shade tree for lawns. It grows best on a free and deep soil, and is much more rapid in growth on moist than on dry soils. Canada and Eastern States.

Q. SESSILIFLORA (Durmast Oak).—The second species of British Oak, and is often included with *Q. pedunculata*, but is distinct from a planter's point of view, not being so long-lived or quite so noble a tree. It is none the less one of the finest forest trees of northern countries, and has a straighter and more cylindrical stem and form of tree even than the common Oak, is of a deeper green, denser foliage, and giving better covert and more leaf soil. The leaves a little longer than those of our other native Oak, sometimes, in mild winters, remain on the tree until the others come. Its area of distribution is slightly different, growing less in plains and valleys than our other Oak, but inhabiting plateaux and slopes of hills and mountains, rising to elevations of 3,000 to 4,000 feet, and also different from the common Oak in its thriving on gravelly, sandy, and calcareous soil.

Q. VELUTINA (Black Oak).—A tall tree up to 150 feet, the outer bark a very dark brown with deeply cut leaves with sharp points. It is rare with us and worth a trial from seed sown where we wish it to grow, or from young seedling plants. Northern United States, Canada, and westwards, and also in the southern states.

Evergreen Oaks.

Q. ACUTA.—Native of Japan, with dark leathery leaves about the size of those of the common Cherry Laurel. It has not been long enough in the country to enable one to judge its merits as an adult tree, but even as a bush it is a fine object. *Q. Buergeri robusta* is a vigorous large-leaved form.

Q. AGRIFOLIA.—The Enceno of the Californian coast is a distinct Oak rarely seen in gardens, in aspect not unlike some forms of *Q. Ilex*, but the leaves are of a different shade of green. Dr Engelmann says it is "a large tree, with a stout, low trunk, often 8 to 12 feet, sometimes 16 to 21 feet, in circumference, and with a spread of branches of 120 feet."

Q. CHRYSOLEPIS (Californian Live Oak).—Along the coast ranges and along the western slopes of the Sierra Nevada, it forms a tree 3 to 5 feet in diameter of stem, or, at higher elevations, is reduced to a shrub. It has pretty spiny-toothed dark green leaves, somewhat golden on the under surface, and in its native country it is a beautiful evergreen tree.

Q. COCCIFERA.—A dense bush with small spiny dark green leaves and very small acorns, often hardly larger than a pea, which now and then ripen in S. England. S. Europe.

Q. DENSIFLORA.—A tree 50 to 60 feet high, in some positions often a shrub. At Kew it grows freely in rather sheltered places, and produces fine leathery leaves of a dark green colour, in outline somewhat like those of a small Spanish Chestnut. Mountains of California.

Q. GLABRA.—A Japanese Oak, with large handsome leaves, the acorns borne in upright spikes. Several varieties are mentioned in catalogues, but they are hardly distinct. At Kew the species makes a large bush, and is thoroughly hardy.

Q. ILEX.—The best-known of Evergreen Oaks, and the most valuable for Britain. Old trees, which have been allowed plenty of space and have been allowed to grow naturally, resemble in form the Olive trees of the Italian coast and of the Riviera. It is one of the most variable of Oaks, but few of the named varieties—and there are many—are so beautiful as the wild kind.

An Evergreen Oak.

Q. SUBER (Cork Oak).—The Cork Oak,

except for the curious growth of its bark, hardly differs in effect from the Holm Oak. There are fine old trees of this at Mount Edgcumbe, Goodwood, and other places, though the Cork Oak is not hardy enough for our climate generally.

Q. VIRENS (Live Oak).—In its native country a tree of the first economic value, it deserves all the encomiums passed on it by Cobbett in his *Woodlands*. All the trees in England I have seen under this name are, however, forms of *Q. Ilex*, and I doubt there being any fine trees of the true *Q. virens* in cultivation in this country.

RAMONDIA (*Rosette Mullein*).—*R. pyrenaica* is an interesting plant, with leaves in rosettes close to the ground, the flowers purple-violet colour, with orange-yellow centre,

Ramondia pyrenaica.

1 to 1½ inches across, on stems 2 to 6 inches long, in spring and early summer. It is found in the valleys of the Pyrenees, on the face of steep and rather shady rocks. There is a rare white variety and a rosy form of much beauty has also appeared quite recently. Less known, but more easily grown, is *R. serbica* from the Balkan Mountains, a rather taller plant, in which the leaves are covered with soft brown hair, and the flowers are pale blue or mauve coloured. A form of this from the Carpathian Mountains, *Nathaliæ*, is perhaps the best of all, though still scarce. Its white variety is both choice and rare. The Ramondias are not surpassed by any alpines for choiceness, flower, beauty and freedom, and adaptability to cultivation in lowland gardens. They revel in cool and shady places, the nearly vertical faces of damp rocks, cool and moist rock gullies, and are well suited to wall gardening where such conditions obtain. In any of these places they should be colonised on a generous scale. Quite hardy, they are happiest when sheltered from cutting winds. A lime-free soil suits them best, a generous mixture of loam, leaf-soil and sand, with consistently cool or moist conditions, meeting all requirements. The best method of increase is by seeds which are freely produced and should be sown promptly. The seeds are exceedingly minute and require but little or no covering.

RANUNCULUS (*Crowfoot, Buttercup*).—Mountain, meadow, and marsh herbs, many of them weeds, while others are among the choicest of alpine flowers and perennials for borders. They are for the most part of the simplest culture; only *R. asiaticus* and its many varieties require special treatment.

R. ACONITIFOLIUS.—A mountain pasture herb. The double-flowered variety which is known as Fair Maids of France is a pretty garden plant about 18 inches high, covered for several weeks in early summer with small rosette-like white blossoms. It is a charming plant in deep moist soils, especially the large-flowered forms.

R. ACRIS (Bachelors' Buttons).—The pretty double form of this plant is also a useful kind, its rich yellow blossoms borne in button-like rosettes: a border plant, and good in moist soil, flowering twice in the year.

R. ALPESTRIS (Alpine Buttercup).—A native of the alpine regions of C. Europe, and found chiefly growing in calcareous soil: a handsome kind, forming small tufts of shining, dark-green, prettily cut leaves; flowers large pure white, with numerous yellow stamens in the centre, and borne singly on erect stems from 2 to 6 inches high in June and July. A good rock garden plant in light, porous, moist soil. There is a pretty dwarf form, hardly rising above the soil. *R. pyrenæus* comes near this in effect, with large white flowers borne several together on stems of 6 inches, but the leaf is a different shape.

R. AMPLEXICAULIS (White Buttercup).—Lovely garden plant, about 1 foot high, with slender stems, glaucous-grey leaves, and blossoms 1 inch across, pure white with yellow centres, blooming in April and May: a pretty border

and rock garden plant, doing best in a deep moist loam. Pyrenees and Alps of Provence.

R. CRENATUS.—A native of alpine and siliceous mountains in Styria, the leaves entire and roundish; the flowers are large, white, with almost entire petals, two or three together at the extremity of stems 3 or 4 inches high in April and May. Plant in the rock garden in deep sandy soil in our country, fully exposed to the sun.

R. GLACIALIS (Glacier Buttercup).—This is the plant of the icy regions, being found near to the melting snow on the loftiest mountains. The thick, fleshy leaves of a dark green and deeply incised, the stem of a brown-red tint, 3 or 4 inches long, prostrate on the ground, and bearing from one to four flowers, the petals of which are at first of a light pink colour, passing into a bright coppery-red. Everything about this plant has a glacial aspect. It thrives on cool and moist but fully exposed ledges of the rock garden, in deep gritty soil with white stones or sand on the surface to keep it cool. Alps and Pyrenees.

R. GRAMINEUS.—A pretty little plant from the Pyrenees, with slender, erect stems of about a foot high and narrow grass-like leaves of a blue-grey colour. Its golden flowers are produced in great profusion during early summer. A useful plant for the border or moist corner of the rock garden, and also quite happy if treated as a bog-plant.

Ranunculus Lingua.

R. LINGUA (Great Spearwort).—A vigorous and handsome native, abundant in flowers, fine for pond or stream side.

R. LYALLI (Rockwood Lily).—A lovely New Zealand plant; in moist places in the Southern Alps the plant has large rounded leaves and very large handsome waxy white flowers, not unlike those of *Anemone japonica*, with delicate yellow stamens in the centre. In some places in Britain this plant is not hardy, but in others it stands the winter well, but is difficult to cultivate in our climate.

R. MONSPELIACUS (Montpelier Buttercup).—A vigorous plant, growing about 18 inches high, with three-lobed woolly leaves and large flowers like the Common Buttercup.

R. PARNASSIFOLIUS (Parnassia-leaved Buttercup).—A singular-looking plant with thick, entire leaves, woolly on the edges, flowers large, of a pure white colour, borne two or three together on a prostrate stem in the month of May. In the Pyrenees and on the French Alps it is rare to find a flower of this handsome species which possesses the full number of petals.

R. RUTÆFOLIUS (Rue-leaved Buttercup).—Rue-like leaves and white flowers with dark-yellow centres. Coming from the highest parts of the Alps, it requires the same treatment as the higher alpine plants, in a fully-exposed spot in moist soil with plenty of grit in it.

R. SPECIOSUS (Large Double Buttercup).—A showy plant, with compact rosette-like flowers of bright yellow in May, succeeding in any light soil. In a full collection, *R. chærophyllus, illyricus,* and *famiariæfolius* may be included.

The above is but a selection from a very large family in nature, many of which are little known in gardens, and many of no garden interest.

RAPHIOLEPIS (*Japanese Hawthorn*).—*R. ovata* is a beautiful Japanese shrub, hardy in southern districts, and with a little winter protection may even be planted in cold parts. Its thick evergreen leaves are of a dark colour, and its flowers, which are large, white, and sweet-scented, are in clusters terminating the young branches. It is a low, spreading bush, somewhat open and straggling, and should not be crowded with other shrubs. Some of the other species, such as *R. indica* and *R. salicifolia*, both from China, are not hardy enough for the open ground, but make good wall shrubs. A cross between *ovata* and *indica*, named *R. Delacourii*, is intermediate in foliage and bears delicate pale pink flowers. It was raised in France, and does not yet seem to have been tried in the open air with us.

RESEDA (*Mignonette*).—The only species worth growing is *R. odorata* and its varieties. Seed sown in the open ground in March or April produces in a few weeks flowering plants, which continue to bloom till late in autumn. If fine masses be wished for, the seed should be sown in pans about the end of March, the seedlings placed singly

in 3-inch pots, and planted out in good soil in an open position. A little attention should be given to thinning out the weak shoots and stopping the vigorous ones. Plants sown in autumn will survive mild winters and produce flowers in early summer, these being finer than those of spring-sown plants. There are now many varieties, as *R. odorata grandiflora, R. o. pyramidalis grandiflora,* the compact, strong-growing variety *Machet,* with bold spikes of reddish flowers and broad abundant leaves, and dwarf varieties. *Machet* is the kind grown so largely in pots for the London markets, and it is also a good kind for the open air, and *Goliath* is far the finest in my garden.

Retinispora.—A name often wrongly given, and it would be difficult to exaggerate the evil effect in various ways of giving long Latin names to mere forms and "states" of twigs which may unhappily be propagated by cuttings or grafts, and the repeating for ever in nursery catalogues of doubtful generic names such as this, which have crowded our catalogues for years. The really distinct plants once known as *Retinisporas* are now classed with Cupressus. This name *Retinispora,* therefore, may be dropped out of use by those who care to simplify their words and collections of trees. One result of this confusion of mystifying names is that it often keeps willing planters from finding the really great trees among the crowd of names.

RHAMNUS (*Buckthorn*).—An extensive group of shrubs, of minor importance, yet with some useful kinds. *R. Alaternus* is a stout evergreen from the Mediterranean region, with small rounded leaves of firm texture, and variable as to habit, but often straggling. There are many forms of this shrub, the best being that in which the leaves are broadly edged with silver; effective against a sheltered wall and in poor warm soils. A second variety, *angustifolia,* is one of the finest dwarf evergreens for the rock garden, of dense growth, perfect in shape, with neat dark green leaves. *R. californica* and *R. crocea* are other evergreen species, the first unarmed and with rather oblong leaves of dark green, and the second (also from California) with small glossy leaves which are bright yellow underneath, and scarlet berries in autumn. The other introduced kinds are summer-leafing. The Common Buckthorn (*R. cathartica*) and the Black Alder (*R. Frangula*) are found in our own hedges and woodlands. They are rarely seen in gardens, though when heavily fruited the clusters of *R. Frangula,* changing from green to bright pink and dark purple, are charming in the wild garden; and the leaves are pretty, especially in the Fern-leaved variety, *R. F. asplenifolia. R. crenata,* from Japan, is ornamental in autumn, when loaded with its glossy black berries. Several kinds are bold and handsome in leaf, especially *R. alpina, R. libanotica,* and *R. tinctoria,* and in a less degree others like *Purshiana, Caroliniana, alnifolia,* and *davurica. R. alpina* grows slowly, and may be used in the rock garden with other mountain kinds like *R. pumila* and *R. saxatilis,* tiny miniature shrubs which grow in the crevices of sunny rocks amid the mountains of Central Europe, spreading flatly over their surface, with glossy leaves and small dark fruits. All the kinds are easily grown and not particular as to soil, the free-growing kinds mostly doing best in damp places. The scarcer sorts are commonly budded, but there is no need for this, seeing that all can be layered, or raised from seed or cuttings.

RHEUM (*Rhubarb*). — Herbaceous plants of great vigour and picturesque aspect, and their fine leaves are well seen by the margins of shrubberies and in places where luxuriant vegetation is desired. They like deep and rich soil. *R. Emodi* is a fine-leaved plant, for groups in the pleasure ground, but requiring good soil. It grows about 5 feet high, and is imposing with its wrinkled leaves and large red veins. *R. officinale,* however, as regards foliage, is the most effective from early in the year, and should be placed near the shrubbery, on the turf, or in the wild garden. In small glades with rich soil a bold effect might be produced by a good selection of Rhubarbs with Ferulas, Heracleums, Rhubarbs, Acanthuses, Yuccas, the common Artichoke, *Gunnera scabra,* and other vigorous hardy plants. *R. palmatum* is a slow-growing plant, and smaller than its variety, *R. p. tanguticum,* which increases rapidly, has fine foliage, and will be welcome to those who grow the other hardy species. *R. nobile* is distinct, forming a dense pyramid of foliage. It is, however, one of the most difficult to cultivate,

and in Europe has succeeded only in the Edinburgh Botanic Garden.

RHEXIA (*Meadow Beauty*).—*R. virginica* is a beautiful dwarf bog plant with vivid, deep rosy flowers 6 or 8 inches high, in sandy swamps in New England and the Eastern States, and is found as far west as Illinois and Wisconsin. *R. Mariana* is even scarcer in this country than *R. virginica*, and less important, growing in drier places. The Rhexias must not be divided much, and healthy tufts should be obtained from their native localities and planted in a sandy peat-bed.

Rhodothamnus. *See* RHODODENDRON.

RHODANTHE (*Everlasting*).—Charming half-hardy annuals from Australia, valuable as border flowers and for winter bouquets. They are all of slender growth, 1 to 1½ feet high, and have glaucous-grey foliage and pretty flowers. The original species, *R. Manglesi*, has fine rose-coloured blossoms with yellow centres, and of this there is a double variety. *R. maculata* has a deep crimson ring encircling the eye of the flower; and there is a pure white variety. *R. atro-sanguinea* differs considerably from *R. maculata*, being not only dwarfer, but more branched. The flowers, of a bright magenta colour, are rather smaller than those of *maculata*, but average 1 inch in diameter. It is rather less hardy than *maculata*, but sufficiently hardy for the open air. All these kinds should be sown thinly in heat in pots in February or March. In the southern counties they may also be sown in the open air in May on warm borders in good soil. Sow them in a warm, open position, and a good light soil—if peaty, the better. I have found some gain from late sowing in July, the May-sown plants dying off in the August heats. We sow at both seasons.

RHODODENDRON (*Rose Tree*).—A noble family of shrubs, so popular that they are often over-planted; that is to say, we see Rhododendrons in large and often lumpy masses in many country places where no planting of any other kind worth speaking of is carried out. In districts where they do well, the soil and climate being suitable, monotonous effects arise through their over-use, against which all who care for beautiful gardens should protest. The mild climate of our country and generally our rather mild winters allow many more kinds to grow with us than on the Continent of Europe generally, or in North America. In severe winters some kinds are touched by frost even with us, and therefore we must be on our guard against planting other than the hardy varieties except in the south of England and Ireland. The hardy American species should be grown more in lowland valleys, as I find that they stand winters which kill *R. ponticum*.

The vast range in our country over which the plant will grow well, alike in Ireland, England, and Scotland, makes the possession of the finest kinds most important. Among the numbers of kinds that have been raised by English nurserymen a good many poor, dull, or ugly in colour have been sent out, and therefore it is important to get kinds good in colour and to group and arrange them better than has hitherto been done; that is to say, not so much in flat areas and lumpy beds. A far better way is to break them up into bold and simple groups, holding the colours more together and not scattering them about in spotty mixtures. It is important to get plants from layers where possible, and not grafted plants, as these are apt to perish and their places be taken by the common stock, of which we have already far too much. Hitherto it has been very difficult to get layered plants; but some of our best nurserymen see the change suggested here is a good one, and are providing for it. It makes great difference in the end whether the kind has its own roots and is spread about into many plants, or is on some wretched stock on which it perishes.

Rhododendrons are of free growth in almost any soils except those with lime in them. On many loamy soils free from lime the plants do perfectly well, although perhaps never so much at home as on a sandy peat. Over a large area of Ireland where the limestone prevails it is, I think, not worth trying to cultivate Rhododendrons, and it is always better to grow things that do best on one's own soil. Given a peaty or limeless soil, the difficulty is to prevent their growing so quickly as to smother each other. They are often too closely planted, and after a few years of rapid growth such plantations cannot show their beauty. It would be much better to plant all the

choice kinds rather thinly. Where from previous thick planting the bushes are too close together, thin them promptly and severely, leaving the choicer kinds and the finest-formed bushes. In this way we get light and shade among the plants instead of allowing them to form one flat level mass. The excellent plan of placing Lilies and the other fine handsome hardy flowers among Rhododendrons and like shrubs tends to keep them more open and delightful in every way, their forms as well as flowers being better shown.

The plants, forming generally close balls of earth, are more easily transplanted than most shrubs. This is often done in late spring and summer, as for the London flower-shows, where numbers of the finest kinds are brought in spring and taken away in summer. In the case of all choice and rare varieties remove the seed-vessels after flowering, thus saving the strength of the plants for future good growth and flowers.

Hardy Rhododendrons seldom flower profusely in consecutive years, but fine displays biennially are usually made. Established plants can take care of themselves, and in strong loamy soil artificial waterings are not required. In very dry summers mulching the roots of a few single plants that occupy a rather dry position is often necessary, but where the beds are on level ground they succeed without this attention. This is not so in all cases, as drought in the early autumn months often kills many of the large plants on shallow soils. Rhododendrons are, as a rule, safe from over-dryness at the root until August; then, if the weather should be dry, a good soaking of water twice a week and a mulch over the roots of half-rotten manure, 3 or 4 inches in thickness, will maintain them in health. Some degree of shade is helpful to Rhododendrons, all the more so in dry soils and in the districts with a slight rainfall.

A propos of the evils of grafting, Mr Scrase Dickins writes: "We have a large number of grafted Rhododendrons, planted over thirty years ago, from the base of which every year a thick growth of suckers springs up; these require to be cleared off in the early summer, and again in the autumn, if the intended variety is to retain its claim to existence; but the labour entailed is considerable, and many are overlooked or passed by for want of time. Occasionally one comes across a great bush of the common *ponticum*, with a small scraggy piece in the centre to show that once it was meant to be a hybrid variety of special beauty; but the worst of the whole business seems to be that the older the plant the larger is the base from which the suckers spring, and consequently the larger is the number of suckers. With Ghent Azaleas the trouble is nearly as bad; the common yellow form on which they are grafted, being a strong grower, soon makes short work in ejecting the less vigorous intruder. It is very unfortunate when, after a certain number of years, the labour and money spent in an endeavour to obtain some specially beautiful effect results in a common-place arrangement of lilac and yellow. When the snow has prostrated large Rhododendrons, those on their own roots will often raise themselves in a thaw without help; whereas those grafted will most likely have broken off short at the base. If the union between the stock and the scion is so imperfect as to give way under these provocations, it follows that the flow of sap and consequent development of the plant must be seriously interfered with. In some cases this may prove beneficial in restraining a coarseness of growth and inducing fertility, but it is the reason why we do not possess in our gardens finer examples of graceful and well-developed natural specimens. In order to gain new and improved varieties it is necessary to raise a large number of seedlings. If nurserymen were to give their attention more generally to raising seedlings and layered plants, it might with reason be expected that they would raise a large number of new and improved varieties. If planters, looking forward to the future, as planters as a rule must do, would insist on being supplied by the nurserymen with own root plants only, then our successors would have finer examples to thank us for, and we should be increasing our store of what is beautiful among our treasures in garden and wood."

Marked progress has been made with hybrid Rhododendrons of recent years, such fine new kinds as Pink Pearl, White Pearl, Mrs E. C. Stirling, and others of a like class, having put many of the older kinds in the shade. These varieties are, however, still scarce, and likely for a while to remain so. The

following is a good selection among the best hardy varieties :—

Album elegans.
Album grandiflorum.
Alexander Adie.
Alexander Dancer.
Atro-sanguineum.
Austin Layard.
Bacchus.
Barclayanum.
Baron Schrœder.
Baroness Lionel Rothschild.
Blandyanum.
Boule de Neige.
Broughtoni.
Caractacus.
Catawbiense.
Charles Bagley.
Charles Dickens.
Charlie Waterer.
C. S. Sargent.
Cœrulescens.
Coriaceum.
Countess of Clancarty.
Countess of Normanton.
Cynthia.
Delicatissimum.
Doncaster.
Duc de Brabant.
Duchess of Bedford.
Duchess of Connaught.
E. A. Boulton.
Edward S. Rand.
Everestianum.
Fair Helen.
Fastuosum fl. pl.
F. L. Ames.
Frederick Waterer.
Gomer Waterer.
Govenianum.
Guido.
Helen Waterer.
H. W. Sargent.
Ingrami.
Jacksoni.
James Bateman.
James Macintosh.
James Mason.
J. Marshall Brooks.
John Spencer.
John Walter.
John Waterer.
Joseph Whitworth.
Kate Waterer.
Kettledrum.
King of Purples.
Lady Annette de Trafford.
Lady Armstrong.
Lady Clementina Mitford.
Lady Clementina Walsh.
Lady Clermont.
Lady Dorothy Neville.
Lady Eleanor Cathcart.
Lady Falmouth.
Lady Grey Egerton.
Lady Godiva.
Limbatum.
Luciferum.
Madame Carvalho.
Marie Stuart.
Marquis of Waterford.
Martin Hope Sutton.
Maximum.
Maximum Wellsianum.
Maxwell T. Masters.
Michael Waterer.
Minnie.
Miss Jekyll.
Miss Owen.
Mont Blanc.
Mrs Beresford Melville.
Mrs Charles Sargent.
Mrs E. C. Stirling.
Mrs F. J. Kirchner.
Mrs Fitzgerald.
Mrs Fredk. Hankey.
Mrs Harry Ingersoll.
Mrs John Clutton.
Mrs John Kelk.
Mrs John Penn.
Mrs John Waterer.
Mrs Mendel.
Mrs Milner.
Mrs R. S. Holford.
Mrs Russell Sturgis.
Mrs Thomas Agnew.
Mrs Tritton.
Mrs Walter.
Mrs W. Agnew.
Mrs William Bovill.
Mum.
Nero.
Odoratum.
Old Port.
Perfection.
Pictum.
Pink Pearl.
Prince Camille de Rohan.
Princess Christian
Princess Mary of Cambridge.
Purpureum elegans.
Purpureum grandiflorum.
Purity.
Ralph Sanders.
Rosabel.
Roseum elegans.
Sappho.
Sherwoodianum.
Sigismund Rucker.
Silvio.
Sir James Clark.
Snowflake.
Stella.
Sultana.
Surprise.
The Queen.
The Warrior.
Titian.
Vandyck.
Vauban.
Viscount Powerscourt.
White Pearl.
William Austin.

There are some dwarf kinds which may be associated with alpine plants in the rock garden; indeed, some are but a span high. One of the prettiest of these is *R. Chamæcistus*, which has tiny leaves, and in early summer exquisite purple flowers, of the same size as those of *Kalmia latifolia*. It is rarely seen in good health in gardens, and is best in limestone fissures, filled with peat, loam, and sand, mixed in about equal proportions. A native of calcareous rocks in the Tyrol, and one of the most precious of dwarf rock shrubs. The well-known *R. ferrugineum* and *R. hirsutum* both bear the name of Alpine Rose, and often terminate the woody vegetation on the great mountain chains of Europe. They are easily obtained from nurseries, and are well suited for the large rock garden, where they attain, in deep peat soil, a height of about 18 inches, with red flowers from June to August, *hirsutum* having hairy leaves and stems. But the best of all the dwarf Rhododendrons is *R. arbutifolium* (Wilson's Rhododendron), a hybrid between *R. ferrugineum* and *R. punctatum*, forming a dense bushy plant with small, oval, pointed, dark glossy green leaves assuming bronzy winter shades, and bearing many clusters of fragrant porcelain-pink flowers in July. For hardiness, freedom, and fine habit, it is a choice little plant when isolated, or as an edging to plantations. *R. myrtifolium* is a cross between *punctatum* and *hirsutum* and intermediate in form and habit, bearing clusters of deep rosy-red. Besides these there are *R. caucasicum* from the Caucasus Mountains, forming a dense low shrub 2 feet high, with clusters of pink to yellowish-white flowers spotted with green within; the leaves oval, dark green above, and velvety-brown beneath. *R. Metternichii*, from Japan, 4 feet high, with narrow leaves and rosy flowers spotted with purple. Also *R. brachycarpum*, another larger Japanese species, with lighter green and more rounded foliage, and creamy-white flowers spotted with green. These are known to be exceedingly hardy, but are as yet only to be had with difficulty. *R. amœnum*, *R. hybridum*, *R. dauricum-atrovirens*, *R. Govenianum*, *R. odoratum*, and *R. Torlonianum* are other dwarf kinds, which may be used in the rock garden, the last two being sweet-scented. They should not be planted near minute alpine plants.

As providing a more searching test than our own climate affords, we give here a list of kinds proved hardy in the New England winters under very varied trial, over a large range, and for a good many years past: *Album elegans*, light blush marked with straw colour, fading to white, free, with an upright habit well suited to the centre of groups; *Album grandiflora*, light blush fading to white, strong growing, and very free; Alexander Dancer,

light rose with paler centre, open and irregular habit, with a larger truss than any other hardy kind; *Atrosanguineum*, blood-red and early; *Caractacus*, rich purplish-crimson, one of the best for size and colour of its flowers, gathered into large compact trusses, with fine habit and foliage; Charles Bagley, cherry-red, a late variety of fine colour, with good habit and foliage; Charles Dickens, bright scarlet flowers, coming early as compact trusses; C. S. Sargent, rich crimson flowers, fine habit; *Cærulescens*, pale lilac-blue or blush, strong growth, and loose habit; *Coriaceum*, a late kind, of dwarf habit and creamy-white flowers; *Delicatissimum*, also late, with white flowers suffused pink, fine habit, and large glossy leaves; *Everestianum*, one of the best in its freedom of flower and dense habit, flowers rosy-lilac spotted with yellow, and crinkled on the margins; F. L. Ames, pale pink flowers with a band of deeper rose-colour, good foliage, but ungainly habit; Guido, good habit, fine trusses of rich crimson; W. H. Sargent, large crimson trusses and the darkest late kind, but of poor habit; James Bateman, fine habit and rich scarlet flowers; Kettledrum, a deep red, late kind; King of Purples, dark purple, free, and of fine habit; Lady Armstrong, pale rose, beautifully spotted, perhaps the best pink; Lady Grey Egerton, good in foliage, habit, and its immense light mauve or silvery blush trusses; Mrs C. S. Sargent, like *Everestianum*, but with bright pink flowers with a yellow blotch; Mrs Harry Ingersoll, flowers of deep rosy-lilac blotched green or yellow on the upper lobe; Mrs Milner, rich crimson flowers, and excellent in other ways; Old Port, distinct in its rich plum colour; *Purpureum elegans*, purple; *Purpureum crispum*, clear purple with crimped petals; *Purpureum grandiflorum*, the best of the purples in colour, habit, and freedom, flowering late; *Roseum elegans*, flowers deep rosy-purple, with rich, glossy foliage; *Roseum grandiflorum*, near the last. These kinds may be planted with every confidence, even where the winters are long and rigorous.

The following is an abstract from *The Garden* of a paper by Mr W. J. Bean, of the Royal Gardens at Kew, on the Indian Rhododendrons in the London district, and therefore of interest to growers in the home counties, less favoured than many districts for the growth of these fine shrubs:—

The altitudes at which these grow range between 4,000 feet and 14,000 feet, but it is at heights of 10,000 feet and upwards that the genus is most abundantly represented. Above 12,000 feet Sir J. Hooker says that three-fourths of the whole vegetation consists of Rhododendrons. The mean temperature at Darjeeling (in which neighbourhood most of the species are found) does not widely differ from that of London, but the extremes of heat and cold are much greater here than there, and it is only a few that can be said to thrive out of doors really well and flower in the London district, although many can remain healthy in foliage when grown in well-sheltered spots. The greatest successes with Himalayan Rhododendrons in the British Isles have been obtained near the sea in the south and south-western counties, where the temperature is equable and moist. The districts in which they are grown to greatest perfection are near Swansea, in Wales, and about Falmouth, in Cornwall, and also in the south of England and Ireland generally, the coast-line all round the islands, too, being favourable. A soil which is naturally peaty is no doubt the best, but not essential; they may be grown out of doors in loam either light or moderately stiff so long as lime is absent, and with plenty of leaf-mould. They should always, if possible, be planted near trees—near enough to be screened from the sun for a few hours a day.

The following is a list of species of some proved hardy in Britain in the southern counties and in good suitable soils:—

R. ARBOREUM.—The best known of the Himalayan species, and one of the most variable. The various forms may roughly be divided into two groups, the one with foliage that is silvery beneath, the other having the under side of the leaf covered more or less with a reddish tomentum. The leaves of all are from 5 to 8 inches long, the trusses rounded or sometimes almost conical, with the flowers closely packed, the colour of the bell-shaped corolla varying from rich crimson to almost white. The plants known under the following names belong to the arboreum group, some having been given specific rank: *Campbelliæ*, flowers rosy purple, leaves rusty beneath; *limbatum*, flowers rosy purple, leaves silvery beneath; *nilagiricum*, flowers rosy, leaves reddish beneath; *cinnamomeum*, flowers almost

white; *Windsori*, flowers and trusses smaller, rich crimson.

R. AUCKLANDI.—This tender species attains the dimensions of a small tree, its stems being of a grey colour with the bark peeling off. A hybrid between it and *Hookeri* called *Kewense* (raised at Kew in 1874) has flowers of a pale flesh colour, not so large as those of *Aucklandi*, but more numerous in the truss. There is also a very pretty hybrid known as *Aucklandi hybridum*, which is hardy in the London district; its flowers are pure white. Syn *R. Griffithianum*.

R. BARBATUM is described as being in a wild state 40 to 60 feet high; I have seen it about 12 feet high in Cornwall. The leaves are 5 to 7 inches long, with flowers of a rich blood-red colour borne in a compact truss 4 inches or more in diameter. There are many seedling forms of *R. barbatum*, one with fleshy-pink flowers being especially good.

R. CAMPANULATUM.—Among the hardiest of the Himalayan species, flowering in April and forming a widely spreading bush. The leaves are coated beneath with a brightly-coloured reddish felt, and the flowers are pale purple, changing to nearly white.

R. CAMPYLOCARPUM is closely allied to the preceding, and it is of similar habit, but the flowers are pale yellow, borne in a loose truss and scented like honey.

R. CILIATUM.—A bushy plant which thrives well in sheltered positions near London. Its leaves are densely covered with hairs when young, less so as they get older; the flowers are borne loosely in small trusses, rosy white on opening, whiter with age. It has been used for hybridisation, and amongst others *R. præcox* and Rosy Bell have been raised from it.

Rhododendron Falconeri.

R. CINNABARINUM.—In "The Flora of British India" this name is made to include what have previously been known as *R. Roylei* and *R. blandfordiæflorum*. The species is, indeed, a most variable one, having flowers of a brick-red, rich crimson, or sometimes greenish colour. They are all distinguished by the long narrow corolla, resembling a Lapageria.

R. FALCONERI.—A noble kind thriving

in Cornish gardens, with oblong leaves about 10 inches long, coated beneath with reddish down, dark green, slightly downy and curiously wrinkled above. The flowers are of a curious shade of creamy-white tinged with lilac towards the base. *R. eximium* is a fine variety of this, differing in its bright pink flowers and the thicker reddish-brown fluff on the upper surface of the leaves.

R. FORMOSUM.—There are two very distinct varieties of this in cultivation—the one has narrow leaves, in shape and size almost like those of an Indian Azalea; the other has them many times larger, obovate, and 5 inches long. Both have the margins ciliated. The flowers are in each variety white, although in the bud stage quite rosy pink. They are about 3 inches wide and as much in depth. *R. Gibsoni* and *R. Johnstoni* are forms of this species, differing chiefly in the larger leaves.

R. FULGENS.—One of the hardiest and rarest of Himalayan Rhododendrons, blooming out of doors early in March, and not always escaping the damaging spring frosts, but if it does, it is the most brilliantly coloured shrub flowering at that time. The flowers are in compact rounded trusses about 4 inches across, a bright blood-red, the leaves coated beneath with a rusty felt. The true plant has been grown outside for many years in the Rhododendron dell at Kew, and it has never been injured by frost, nor does it ever fail to set abundance of bloom. Himalayas, at elevations of 12,000 to 14,000 feet.

R. HODGSONI.—A spreading shrub or small tree, rarely more than 12 feet high, the stout leaves upwards of 1 foot long, covered beneath with a grey tomentum, the upper side a bright shade of green, and flowers are of a pale rose-purple. It is hardy in both the Welsh and Cornish gardens.

R. HOOKERI.—A native of Bhotan, and on the Oola Mountain this is said to form entire thickets accompanied by *Pinus excelsa*. The leaves are oblong or oval, 4 inches long and glaucous beneath, the flowers of a bright red.

R. KEYSI.—A curious species, with flowers more like those of a Correa, brick-red, about 1 inch long, the lobes of the tubular corolla being almost straight.

R. LANATUM.—The young branches, both surfaces of the leaves, and the petioles are covered with a dull white or tawny tomentum; the sulphur-yellow flowers are 2 inches across.

R. MADDENI.—A shrub 8 to 10 feet high, with bright green lanceolate leaves. The corolla is pure white, bell-shaped, and about 3 inches across the mouth. It is known also as *R. Jenkinsi*. *R. calophyllum* is practically the same thing, but a distinction is founded on the shorter calyx lobes and much smaller seed vessels.

R. NIVEUM.—One of the hardiest species, but far from the most showy, the young leaves being covered with a white tomentum, the upper surface afterwards becoming deep green and glabrous, the purplish lilac flowers close in a small head.

R. THOMSONI.—The flowers of this species, of a fine red, are borne in loose trusses, hardy in the London district and flowering in the early part of April; the leaves 3 to 4 inches long, very dark green above. This is a plant of bushy habit; the largest I have seen is growing at Tremough, near Falmouth—a magnificent garden for these Rhododendrons. It was 12 feet high and 15 feet through.

R. WIGHTI.—A small tree, found at elevations of 11,000 to 14,000 feet, bearing yellow flowers 2½ inches across in large rounded trusses. The leaves are firm and stout, 6 to 10 inches in length, and when young quite white underneath, becoming grey with age.

R. anthopogon, flowers sulphur-yellow; *R. glaucum*, flowers dull rose-purple; and *R. pendulum*, flowers white, are small-leaved dwarf shrubs, chiefly of botanical interest.

NEW HIMALAYAN HYBRIDS.—By far the greater number of our garden Rhododendrons are the product of only four species which have been closely inbred, these being *catawbiense*, *ponticum*, *caucasicum*, and *arboreum*. For many years raisers confined their attention to these species, but of late the field has been widened by the use of *Rs. Fortunei*, *Aucklandi*, *Thomsoni*, and others, and many of the most remarkable of recent gains have come from this infusion of new blood. Some of these hybrids are from the crossing of wild species, and others are of mixed parentage—crossing of a species with one of the hybrid garden varieties. Among the best of these plants are:—*Thomsoni hybrids:* Ascot Brilliant, *Luscombei*, and *Luscombei splendens*. *Fortunei hybrids:* Duchess of York, H. M. Ardenne, George Thiselton Dyer, Mrs Thiselton Dyer, Francis Thiselton Dyer, *Harrisi*, etc. *Aucklandi hybrids:* Kewense, Pink Pearl, White Pearl, *Manglesi*, Coombe Royal, Beauty of Tremough, *Gauntletti*, Dawn, Beauty of Littleworth, etc. *Ciliatum hybrids:* Præcox, Rosy Bell. *Arboreum hybrids:* Duke of Cornwall, and the old series—*Altaclerense*, *Nobleanum*, *venustum*, *pulcherrimum*, and *Russellianum*. Others are named Mrs Henry Shilson, Harry Mangles, Rose

Queen, Pride of Penjerrick, Glory of Penjerrick, and Gertrude Jekyl. Though hardy in all that concerns growth, some of these fine plants bloom too early for the open air, losing their flowers by frost before they can expand; others are fully hardy. But we need to know more about most of these kinds before planting them in the flower garden. Most of them are fully described in "Flora and Sylva," vol. iii., p. 38. A correspondent in the south of Ireland, in Fermoy, sends to *The Garden* the following account of the kinds he has found to do well there—quite hardy without protection—and also of his failures :—

Tree Rhododendron at Castlewellan, co. Down.

As I have taken much pleasure in cultivating and hybridising Rhododendrons for about twenty-five years, especially with a view to acclimatise those of Sikkim and Bhotan, I think the results at which I have arrived may be interesting. In order to avoid occupying too much space, I shall first give the names, as furnished to me, of those varieties which I have found perfectly hardy trees without the slightest protection, although some of those which bloom early (about March) have their flowers occasionally spoiled by the spring frosts :—

Alpinum; Æruginosum; Anthopogon; Arboreum album; Arboreum roseum, very beautiful; Arboreum nepalense; Barbatum, magnificent; Calyculatum; Camelliæflorum; Campanulatum; Campbelli; Campylocarpum; Ciliatum; Cinnamomeum; Cinnabarinum; Crispiflorum, not bloomed; Eximium, fine, like Falconeri; Falconeri, grand; Fulgens; Falconeri superbum, not bloomed; Glaucum; Hodgsoni, grand, has not yet bloomed; Hookeri; Keysi; Lanatum; Lancifolium, not bloomed; Metternichi; Massangei, beautiful bloom this year; Niveum; Nobile, a grand plant, never bloomed; Ochraceum; Roylei; Virgatum; Wallichi, I think same as Niveum; Wighti.

The following were more or less injured last spring (those marked * I have not yet succeeded in acclimatising) :—

Argentum, much injured, growing well, not bloomed yet; Aucklandi, much injured, growing well,

bloomed well in 1878-79-80; Calophyllum, apparently killed, but growing well; *Dalhousianum, I do not give this up; *Edgeworthi, I do not give this up; Formosum Gibsoni, much injured, but growing well; Jenkinsi, much injured, doing well, never injured in twenty years previous; Kendricki, I doubt its name; Longifolium, much injured, growing well, has never bloomed; Lindleyanum, much injured, growing well; Maddeni, much injured, growing well (I see no essential difference between this and Jenkinsi; centre of Jenkinsi flower rose, of Maddeni yellow); Nilghiricum, not bloomed, much injured; *Nuttali, many plants killed, I fear hopeless; Thomsoni, much injured, but growing; Windsori, very much injured, but growing well. The last two plants appear to me less hardy varieties of R. arboreum.

I have not included any European hybrids in my list, of which, between Himalayan sorts alone, I know many, and have a great number of my own rearing also, and the reason I do not give up *Dalhousianum* and *Edgeworthi* is that I have seedlings from crosses of them which promise well to be hardy, one especially, between *Edgeworthi* and, I think, *calophyllum*, which only lost its bloom-buds last spring, I am very proud of; its fragrance is far beyond any I know—Rollisson's *fragrantissimum* and *Lindleyanum* being, so far, the best. I have named it the Empress of India in honour of our Queen.—H. H.

Indian Mountain Rhododendrons may not only be successful in the southern parts of England and Ireland, but very fine flowers have been sent me from Scotland (Stonefield, Tarbert, Argyllshire), kinds thriving there that do not always prove hardy in the south. Mr D. Robertson, who sent the flowers, said the effect produced by them was very fine, and the following kinds have flowered in that place without any kind of protection: *Falconeri, arboreum, arboreum album, niveum, cinnamomeum, Campbelli, campylocarpum, Thomsoni, barbatum, fulgens, Wallichi, ciliatum, Roylei, Edgeworthi, glaucum, Gibsoni, candelabrum, setosum,* and *pumilum*. Another Scotch correspondent, writing from Edinburgh, gives the following additional kinds as hardy and flowering well in his garden: *Æruginosum, argenteum, barbatum, blandfordiæflorum, cinnabarinum* and its fine form *majus, Fortunei, fulgens, Hodgsoni, lepidotum, longifolium,* and *virgatum*.

New Chinese Rhododendrons.—These are not yet much known in our gardens, and yet a few kinds have already shown their value. On the whole they approach the Rhododendrons of N. India—in fact, several species in the one region have an almost exact counterpart in the other. On the other hand, not a few are quite unlike any other known kinds, such as the charming *R. racemosum*, in which we have a distinct new type of Rhododendron. We may hope, too, from the latitude and elevation at which many of them grow, that they will prove hardier than the Himalayan species.

R. aucubæfolia is a fine species with white flowers and bold leaves 6 or 8 inches long. *R. Augustinii* has large white, pink, or mauve coloured flowers, finely waved around the edges of the petals. *R. auriculatum*, a fine low tree of 10 to 30 feet, with beautiful white or rosy flowers, perhaps finer than in any other Chinese kind. They are funnel-shaped, 3 inches deep and 4½ inches across the mouth; the leaves leathery and 4 to 9 inches long. *R. ciliicalyx* is another charming plant with even larger white flowers flushed with rose, but it is untried as to hardiness. *R. Delavayi*, with dark red flowers, comes very near the Himalayan *R. arboreum*. *R. Fortunei*, though an old kind, is still rare, and one of the best. It is the most fragrant of true Rhododendrons, the flowers composed of finely crisped petals, and clear pale rose fading to white. Some garden crosses have lately come from this kind, which promises to give us a very useful early-flowering group for gardens. *R. lacteum*, grown already to a fine size at Kilmacurragh, Ireland, comes near the Indian *R. Falconeri*, with trusses of white bell-shaped flowers 2 inches across. Its leaves are a foot long, covered beneath with a beautiful felt, silvery-white at first, turning brown with exposure. *R. racemosum* is the most useful and distinct of these new kinds, growing without any trouble, and readily increased. It makes a low shrub, well adapted to the rock garden, growing slowly, needing little root room, and flowering freely from a height of only a few inches. The white or pale rosy flowers are not large, but instead of confined as in other Rhododendrons to a rounded truss at the tips of the shoots, here they also appear all along the shoots as clusters from the leaf-axils, so that in April each branch is transformed into a raceme of flowers. *R. rubiginosum*, a scarce kind which has proved fully hardy at Kew, its flowers bright rose spotted with crimson. It flowers in late April or May, and is easily increased from home-saved seeds. *R. scabrifolium* is a pretty little plant, never growing high, with rosy flowers and hairy leaves and stems. *R. vunnanense*, one of the

best, is a beautiful hardy kind of slender open growth, doing best in a sheltered spot, where it blooms in May. The trusses are small but exceedingly graceful, composed of flowers 2 inches or so across, white or rosy-lilac, freely spotted with dark red on the upper petals.

LAYERING RHODODENDRONS.—The importance of getting the many beautiful Rhododendrons hardy in our country from layers is great. The first garden in which I have seen the practice well carried out was at Sheffield Park, in Sussex, by Mr A. G. Soames, who writes :—

Layering of Rhododendrons is a simple affair. A shoot of the current season's growth is cut about half through, and we put a little wedge of wood in to keep the cut effective, though I do not know that this is necessary. The cut shoot is then pegged firmly into the soil and a couple of inches or so of soil are placed over the pegged down portion. In two years we have a plant on its own roots. When I plant Rhododendrons I always layer shoots all round, and have some fine bushy plants. The shoots from the layered branches always, I find, make far more vigorous growth than the main portion of the plant does. I started doing this some years ago, and it proved so satisfactory that we never think of planting Rhododendrons without at the same time layering them now.

The usual time is September or March, or October or April, which coincides with the right time for *moving* Rhododendrons. It also has the advantage of keeping the plants firm, and by getting down the outside branches a canopy from the sun is sooner arrived at, which makes a lot of difference in growth.

RHODORA (*Canadian Rhodora*).—*R. canadensis* is an interesting bush, 2 to 4 feet high, allied to the Rhododendron, a native of the swamps of Canada, hardy, and needing a moist light soil, though it prefers peat. In very early spring it has clusters of fragrant rosy-purple flowers before the leaves unfold.

RHODOTHAMNUS.—*R. chamæcistus* is a beautiful little alpine bush very rare in gardens and rather difficult to cultivate. It is less than 1 foot in height, with ovate leaves from a quarter of an inch to half an inch long, thickly clustered on the twigs, the margins set with slender hairs. It flowers towards the end of April and the beginning of May, and produces its blossoms in clusters at the ends of the shoots. From two to four flowers are in the cluster, and each is about 1¼ inch in diameter, the free portions of the petals fully expanded. The colour is a pale clear pink with a ring of a deeper shade in the centre. A feature of the flower also is the long stamens. It is by no means rare in a wild state, being found in the Tyrol (often in large patches) as well as in Carniola. In cultivating this plant full exposure of the foliage to sunlight, combined with cool, uniformly moist conditions at the roots, is necessary. It should be planted in a sunny position in a crevice or small pocket between the stones, which keep the roots permanently moist and protected from the hot sun that the leaves enjoy. The compost should consist mainly of good loam, to which a small proportion of peat may be added, and which should be free from calcareous matter. Syn. *Rhododendron chamæcistus.*

RHODOTYPOS (*White Jew's Mallow*).—*R. Kerrioides* is a summer-leafing shrub from Japan, with a growth and foliage recalling the familiar old Jew's Mallow on cottage walls, but with white flowers. It is of slender growth, but makes a vigorous bush when well grown, and is usually 5 or 6 feet high, though against a wall it reaches a height of 10 or 12 feet. It flowers in May, and keeps in bloom a considerable time.

RHUS (*Sumach*).—Low trees, shrubs, or climbers, with an acrid juice, usually hardy, and remarkable for their elegant and picturesque growth, and often brilliantly coloured leaves in autumn. Such good qualities as they have are rarely shown in our gardens, where they are, indeed, often absent save one or two of the commoner kinds, and these never grouped or shown in any right way, but perhaps half starved in the conventional muddle of the shrubbery. Several kinds are poisonous, and should not be planted near the house, and, if used at all, should be handled with great care, as accidents are frequent. Their poisonous character is well known and feared in their native countries. The Sumachs are not difficult as to soil or cultivation, thriving in ordinary garden soils, and rather enjoying poor and dry soils, some of them being suitable, therefore, for grouping on dry banks where little else will grow. They may be increased

by root cuttings, layers, and also by seed.

R. CANADENSIS (Fragrant Sumach).—A hardy shrub with trifoliate leaves, a native of rocky woods in Canada and New England, and through eastern America, especially along the mountains. It has pale yellow flowers in short dense clusters, formed in autumn but flowering in spring before the leaves appear. Very useful for dry rocky banks, where it spreads prettily.

R. COPALLINA (Mountain Sumach).—A

Rhus copallina.

shrub or small tree with pinnate leaves of smooth glossy texture, turning a fine colour in autumn in its own country, as they probably would in ours in full sun in warm soil. New England, Canada, and southward and westward.

R. COTINOIDES (American Smoke Tree).—A small tree with oval leaves, and somewhat like our European kind, but really better, with larger and thinner leaves, taking also a fine colour in autumn, of a beautiful scarlet, suffused with orange and crimson. A native of Missouri, Indian territory and eastwards. It should be planted in dry, warm soil and sunny positions. N. America.

R. COTINUS (Venetian Sumach).—A beautiful and distinct shrub, long cultivated though not always well placed, the simple leaves taking a fine colour in autumn and the curious inflorescence giving a very pretty effect. There is a purple variety which is an improvement, and a pendulous variety less important. The Venetian Sumach looks very well as a group in a sunny open situation. S. and C. Europe and the East.

R. GLABRA (Scarlet Sumach).—A distinct very hardy, bushy kind, with smooth rather small leaves, thriving in any poor dry soil, the leaves taking a very brilliant colour in autumn. Var. *laciniata* is very distinct, the leaflets longer and of much greater breadth than in *R. glabra* itself, but they are cut up into narrow pinnate segments. When unfolding they remind one of a finely-cut umbelliferous plant in spring; when fully grown the midribs are red; and in autumn the leaves glow off into a bright colour after the fashion of American shrubs. The wild plant is much rarer in cultivation than the cut-leaved variety.

R. OSBECKII.—A fine kind from China and Japan, with pinnate leaves much finer than the others, striking foliage, also turning in good seasons and warm soils a good orange colour in autumn. This is one of the kinds that might be cut down annually where plentiful, so as to get the fine effect of the foliage on the young vigorous stems.

R. RADICANS (Poison Ivy).—A distinct woody climber very common in the N. American hedgerows and copses and also up trees. Its leaves give it somewhat the character of a Virginian Creeper, and some unsuspecting nurserymen sent it out with a new name as *Ampelopsis Hoggi*, under

The Venetian Sumach (*Rhus cotinus*).

which it has been distributed in many gardens. It is a most poisonous plant in its own country and also in ours, accidents taking place from it in gardens,

and the cause of the illness is not always known. If kept at all in the garden, it should be in rough places where it would not have to be handled or pruned. Syn. *R. toxicodendron*.

R. TYPHINA (Stag's Horn Sumach).—In its own country often a small tree or shrub, in ours generally a loose shrub common in gardens. The leaves (and stems) are densely covered with long soft hairs, and often take a fine colour in autumn, which is increased by the persistent crimson seed-clusters. It is a native of sandy or rocky soil from Nova Scotia and Canada southwards. There is a lace-leaved form of this species also, in which the segments are very fine.

Rhus typhina.

R. VERNICIFERA.—The famous Lacquer Tree of Japan, and a graceful shrub in the milder parts of Britain, but it is said to be very poisonous.

R. VERNIX (Poison Sumach).—This is a shrub or, in its own country, a small tree with pinnate leaves, and growing in swamps in southern Ontario and the coast district of the eastern States. It is a very poisonous plant, and must not be brought much into gardens. The leaves are glossy and smooth, and turn a fine colour in autumn.

RIBES (*Currant*).—The favourite old Crimson-flowering Currant (*R. sanguineum*) is typical of the few species that can be called ornamental shrubs. This shrub is so common that I need only allude to the fine varieties of it that are to be obtained from the best nurseries. Perhaps the best form is that named King Edward VII, with very large flowers of intense colour. Deep and rich in colour is the variety *atrorubens* (called also *splendens*), though the flowers and racemes are smaller. The crimson-red of its blooms forms a striking contrast to the variety named *albidum*, whose flowers are almost white, though slightly suffused with pink. The double sort (*flore-pleno*) is an admirable shrub, with very double flowers, which last a long time in perfection, and, as they expand later than the common kind, prolong the season. The variety *glutinosum* is distinguished by clammy foliage and large pale rosy-pink flowers. A new form with golden leaves has recently come to light, but is not yet generally grown.

The Yellow-flowering, or Buffalo Currant (*R. aureum*), deserves to be more commonly grown. It is a different shrub from *R. sanguineum*, having larger flowers of a rich yellow, which appear about the end of April or beginning of May; the leaves also are smaller, more deeply lobed, and of a paler green. The variety *præcox* is so named because it flowers earlier than *R. aureum*, and is most desirable on that account, and the variety *serotinum*, because it flowers late. *Serotinum* is even finer than the type.

R. GORDONIANUM.—A hybrid between *R. aureum* and *R. sanguineum*, is an old and tolerably common shrub—intermediate in growth as well as in flowers, which are an orange-red; it is distinct and showy. It is also known as *R. Beatoni* and *R. Loudoni*. Of the numerous other species there is none so fine as the Californian Fuchsia Currant (*R. speciosum*), whose flowers so much resemble miniature Fuchsia blossoms that in some places it goes by the name of *R. Fuchsioides*. Its deep red blooms have protruding stamens, and hang from the leaf-axils in clusters of two or three. In growth and foliage it resembles a Gooseberry. A densely-flowered bush is extremely pretty, and lasts in perfection a long time. Though hardy enough to be grown as a bush in the milder parts of England, it is usually seen against a wall, and there are few more elegant wall shrubs.

R. LAURIFOLIUM.—This low growing unarmed evergreen is welcome, as its flowers appear in February. These are greenish-white, fruit oval and black when ripe.

RICHARDIA (*Calla*).—This name has been accepted by botanists for the last three-quarters of a century, although it is not generally used by gardeners. The genus consists now of various species. They all have a perennial tuberous root-stock, not unlike that of Caladium, from which spring the annual leaves and scapes, the former with folding stalks, which form a kind of stem, bearing sagittate leaves, the latter erect, stout, and

bearing a large spathe. There is a noteworthy difference between *R. æthiopica* and the others, the former having a rhizome and never naturally dying down.

R. ÆTHIOPICA (*Lily of the Nile*).—Introduced into Europe from S. Africa in 1687. It is emphatically a Cape plant, and is not found within 1,000 miles or so of the Nile, although it is commonly known as the Lily of the Nile. In some parts of this country, for instance Cornwall, it has become naturalised in shallow water, spreading and flowering with the same freedom as in the ditches and swamps of the Cape.

ROBINIA (*False Acacia*).—Beautiful flowering trees for lawn or shrubbery. The common Acacia or Locust Tree (*R. pseudoacacia*) is of quick growth, hardy, and thrives almost anywhere. The ordinary form, with its white Pea-shaped blossom, in full beauty about the end of July, is the most familiar. Of the numerous varieties the following are the best: *Decaisneana*, with delicate pink flowers; *semperflorens*, flowering throughout the summer, and having white blossoms and bright green foliage; and *Bessoniana*, the thornless branches of which form a dense globular head of deep green foliage, which is retained until very late in autumn, hence its great value as a town or a street tree; *mimosæfolia*, with finely-divided leaves; *fastigiata*, of upright growth; *crispa*, with curled foliage; *monophylla*, with leaves entire instead of pinnate; *umbraculifera*, with a spreading head; *macrophylla*, with large leaves; *sophoræfolia*, with leaves like the Japanese Sophora; and *inermis*, with a small head of spineless branches. The varieties of Robinia are very often striking and graceful trees and group hardy. I planted some of the most attractive, but they were always grafted on the common wild kind, which in due time kills the precious variety, often smaller and finer in leaf, and so little by little they gradually perish. After much trouble I was able to get a few little cuttings of the Mimosa-leaved form from a friend at Orleans. These I put in, and are now graceful bushes, quite hardy, and without a sign of going back. This is only one of the many examples of the evils of grafting, the result of which for the trade is serious, because the trees go out of cultivation eventually.

R. HISPIDA (Rose Acacia) is one of the finest of small trees, requiring little room and not fastidious as to soil. It is naturally straggling in growth, 5 to 15 feet high; its foliage is much larger than that of the other Robinias; the clear rose-pink flowers are also larger. A well-flowered specimen is a pretty sight. It flowers in June, but often continues at intervals till autumn. It may be known when not in leaf by the dense rusty hairs covering the young twigs. Its branches are brittle and apt to get broken by high winds, especially if it has been grafted high; therefore choose a spot sheltered from high winds. If the branches become heavy, especially in flower-time, support them by stakes. It may be grown as an espalier, like a fruit tree, and this will protect it from winds, or it may be trained against a wall. There are several so-called varieties, but none is more beautiful than the type. N. America.

R. KELSEYI (Kelsey's False Acacia).—This is a new kind found by Mr Kelsey, of Boston, a very graceful shrub, pretty in flower and having its seed-pods covered with red bristles. For some time this plant will doubtless be propagated by grafting on the common Acacia, but the sooner we get it from seed the better.

R. NEO-MEXICANA (Western Locust Tree.)—A spreading shrub or low tree of 20 to 25 feet. It is a vigorous plant of fine habit, the young shoots, the under side of the leaves, the flower stalks, and the seed-pods covered with short brown bristles; the branches bear two spines at each node. Its bluish-green leaves are rather long and gracefully drooping, while the flowers, of a pale rose colour, are carried in short dense clusters towards the end of the summer. It is a useful addition to the group, hardy, and flowering freely when quite small. This is the only kind found in the western states of America. It does not thrive in heavy cold soils. N. America.

R. VISCOSA (Clammy Locust).—Smaller than the ordinary False Acacia, but is elegant in foliage and beautiful in flower. The flowers resemble those of Decaisne's variety of the common Acacia, being of a pale pink colour, but the clusters are shorter and denser. It is a beautiful lawn tree, flowering while the tree is still small; fully grown it is of picturesque habit, from 30 to 50 feet high, thriving best in a deep light soil in a sheltered spot.

RODGERSIA. — Reputedly peat and moisture-loving, one of the finest groups of the Bronze Leaf (*R. podophylla*) I have ever seen was growing until a few years ago fully exposed in light, loamy soil, without root moisture,

in the sun-kissed garden of the Msises Ewbank at Ryde, Isle of Wight. Given moisture, or sandy loam and leaf-mould, with partial shade, Rodgersias are of quite easy culture. Established examples will reach, when in flower, to a height of 4 feet, or even 5 feet. Essentially plants for effective gardening, a free grouping of them in the rock garden, or by sheltered streamlet in prepared soil, is among the best ways of seeing them to perfection. They are native of China and Japan and amenable to cultivation throughout the British Isles. Seeds and division of the root-stock when the plants are dormant are the best methods of increase. The following are all worth growing :—

R. ÆSCULIFOLIA.—A strong-growing species with erect panicles of pinky-white, fragrant flowers, on stems 3 to 4 feet

Rodgersia podophylla.

high. The leaves, as the specific name implies, resemble those of the Horse Chestnut, and at maturity assume a rich bronzy-green. A fine plant for waterside gardening.

R. PINNATA.—A distinct plant, whose handsome panicles, 3 to 4 feet high, of rosy-pink flowers, stand out well above the emerald-green, often bronzed, red-tinged leaves. In this the leaflets are arranged in pairs. *R. pinnata alba* is a distinct wild form, with a leaf effect resembling that of *R. æsculifolia*. This produces panicles of creamy-white flowers.

R. PODOPHYLLA (Bronze Leaf). — At once the best known and perhaps the most picturesque of the whole race. Above the handsome five-parted leaves, and rising to 4 feet or so high, the tall panicles of creamy-white flowers produce an effect not unlike that of a giant Meadow Sweet.

R. SAMBUCIFOLIA.—With large pinnate, deep-bronze leaves, and panicles of creamy-white flowers in July. A novelty, and probably not yet in general cultivation.

R. TABULARIS (Table R.).—A very extraordinary-looking plant with leaves like round trays. It is free and hardy and a fine thing for association with the greater fine-leaved hardy plants. The flowers are creamy-white and borne well above the leaves.

All require the same treatment, and if well grown flower well every second year. *R. tabularis* is a bold-growing and handsome species with huge peltate leaves and plumes of cream-white flowers.

ROMNEYA (*White Bush Poppy*).—The fairest plant that ever came to our land from that country of flowers, California.

R. COULTERI (Matilifa Poppy).—A tall perennial, with, when well grown, beautiful close leaves and an immense white fringe of flowers. The lustrous white flowers are of a peculiarly delicate texture, the petals somewhat transparent, and yet enduring in a good state for days ; their fragrance is delicate. The flowers are borne mainly on the points of the new shoots and on laterals nearest the points, more sparingly on the lower laterals. It seems quite hardy in our country, with old mortar, rubble, and perfect drainage. An American told me he had never seen it so well in its own country as in my garden in Sussex, where the only protection it has is a few ashes thrown round the roots in winter. It flowers right into autumn, and is beautiful and stately in effect. Where it will not grow well in the open, it would do so in many places against a wall with a southern aspect. When necessary, transplanting should be in spring, just before growth begins.

For winter protection, pine needles form the best covering, and, after these,

rough cocoanut fibre. A point in starting is to get healthy plants in pots, planting in spring and not disturbing the roots much. For its propagation seeds is the best way, as from division the plants do not seem to come so well. *R. trichocalyx*, a recent addition, is dwarfer, more reliable in blooming, and more freely flowering, though less handsome than the older kind.

R. TRICHOCALYX.—Is another beautiful and stately plant, evidently as hardy as *R. Coulteri*, but somewhat dwarfer, and if anything more free to flower. In my garden it takes its place with other hardy perennials and is not protected in any way. A fine distinct plant, well deserving of culture.

Romneya Coulteri.

ROSA (*Rose*).—The queen of flowers, fair as it is, would be much more at home with all if one could get rid of certain drawbacks. The common idea that Roses can only be grown in heavy clay soil, if carried out would exclude them from a large area of our country where light, sandy, and calcareous soils prevail. If we can get Roses on their own roots we can grow them well in such soils—in some cases better. The trade practice of grafting all Roses from various climates on the native Dog Rose is a source of infinite trouble to Rose growers. Some do well on the stock, though in the end suckers will prevail, some kinds flower badly, and some die. For years I have grown many hundreds of Roses in my flower garden and also in open plots, and found that quite half the Tea and China Roses did badly, or perished, if worked on the Brier, the most vigorous of wild Roses. The old summer-flowering Roses of European origin did well on the Brier; the trouble arose from attempting to put the Roses of Chinese origin on our native stock. I had at first no choice but to use the

plants sold to me by the trade, and so I lost years in trying to overcome the difficulty. The suckers were so strong and fierce in my plots that in getting among them I had to wear very long leather leggings. Getting rid of suckers is laborious and tedious work. Where the popular idea is that Roses do best on clay, let people who entertain it so enjoy them, but let those who have soils of a different nature not despair, though they must make their beds deep in the soil in which Roses are supposed to grow best. In districts with such soils—that is, light, sandy, or calcareous—the best way is to insert medium-sized cuttings of the half-ripened wood in September, if possible *where they are to grow*. The chief difficulty in working plants on their own roots is that the root is more fragile than the Dog Rose root. One Rose put against a wall many years ago in my garden is still in perfect growth, which, I am quite sure, would, if grafted on the Brier, have gone the way of all Roses.

The attempted classification of Roses into Teas, hybrid perpetuals, etc., is confusing and not sound, as all these Roses are hybrids. What is wanted in the trade and other catalogues is alphabetical lists of the best varieties, without following the absurd attempt at classification. It would be difficult to imagine anything more confusing than the writings on the Rose and our catalogues of the present day! Almost useless groups, like the Boursault, are dignified as classes, while more important groups like the noble Teas often receive no due notice; the confusion arising from the misleading term "hybrid perpetual" has effectually concealed the fact that the true perpetual bloomers are the Tea Roses, so keeping the noblest of all Roses out of gardens even in the southern counties. For many years Roses far superior to the many so-called "perpetual" in point of continuity of bloom have been raised, and yet, as a result of that ill-chosen name, one may go into some of the largest gardens and hardly see a Rose in the Rose garden in August. The set idea of the Rose garden itself, as laid down in all the books, *i.e.*, a place apart where one can only see flowers at a certain season, was harmful, as it led to the absence of the Rose from the flower garden. Instead of seeing the Rose in many different attitudes in a country place, we see a wretched mob of standards and half-standards rising out of the ground, generally in a miserable formal arrangement called the Rosery. The Rose exhibitors' Rose garden is even uglier than the so-called Rosery in the large country seat, and thus the beautiful human and artistic side of the Rose garden has been forgotten.

Tea Roses are in many ways so superior to all other Roses that we might place them first, yet there is room for a great extension of their culture in gardens, both large and small. We find even standard works on Rose growing speaking of the Teas as tender and needing protection. Others say that only in a few instances can they be grown in the open ground; and to have them in full beauty, to ensure a constant succession of flowers, and to produce them in all their loveliness and purity of colour, they must be grown under glass. This is not so. Tea Roses may be grown in many gardens where they cannot now be found, and all who love Roses should try them. The variety of lovely colours amongst Tea Roses, the odour, the long season over which a profuse bloom is borne, and their charming foliage are great merits. Let us for ever give up the stupid notion of growing our Roses only in a Rosery, in some out-of-the-way spot. The grand Tea Roses now under notice are worthy of the best position in the garden. None, with me, have ever been protected, but winter winds blow furiously over the garden, and on several occasions more than 20° of frost have been registered among the plants. They may be grown with every prospect of success over quite the southern half of England and in many other favoured spots. As it is extremely difficult to buy strong plants of Tea Roses on their own roots, the trials were necessarily made with good plants grafted on the Dog Rose, but all my experience tends to show that with many of the best kinds I should have been more successful with plants raised from cuttings struck in the open air in autumn. A great point is to put the cuttings in where we wish the plants to grow. Another is not to let the little plants flower — they try to do so very early, and this must be prevented by constant pinching. I feel certain now that many of the kinds I have lost, or that bloomed feebly and

died out, were the result of grafting, or arose from the stock itself and conflict of the saps of plants of quite different countries and natures. To be quite fair to all these beautiful Roses, they should be tried in both ways, and not for one year only.

A Rose Selection.—It is with some regret that in previous editions of this book I have followed the common way of catalogues, of throwing Roses into many classes, often without any sound reason, and thereby doing infinite harm in many ways by confusing people with a multitude of kinds, by making too much of supposed divisions, and by, in the end, keeping in cultivation many Roses that are not worth their place in view of the many good ones that want more space than is now allotted them. In every branch of human effort the mania for hair-splitting and classification is harmful and even impossible, as in the attempt to distinguish between practice and science! If we glance over the pretended divisions in catalogues of Roses and look only at those around us, the real distinction comes from the infusion of the blood of Indian and China Roses into, and often *instead* of, the old summer Roses, which are mainly of European origin and flower but a short time, to the lessening of their value to us very much. The Tea Roses form a precious division of themselves in their beauty and length of bloom and many other advantages. The attempt common in catalogues to divide these from the hybrid Teas is a mistake, and the best way is simply to make a list of the ones that best answer the helm and give them first and sufficient place.

Hybrid perpetual Roses are far less grown than they used to be, but someone must always have them, though, generally speaking, summer Roses, as compared with those that flower right into the autumn, are hardly worth a place. Climbing Roses tell their own story, and some of them are most precious, especially those of prolonged bloom; these have some of the China Rose in them, and a fine type is Bouquet d'Or.

Rose, *Celeste*.

The Wichuraiana Roses are based on the beautiful Japanese Rose of that name, which is more beautiful than the many Ramblers raised from it. Some of these cover the earth in many gardens with Roses that are little better than Brambles. These Ramblers have done infinite harm to the culture of Roses, and excepting the few kinds one really enjoys after a thorough trial, would be best abolished. The China Roses, from which we get the Teas, also mark themselves pretty well, and the main concern about them

is to see that they are always grown on their natural roots, and that the old climbing *Cramoisie* is worth the whole lot of Ramblers. There is no need to make a class of Japanese Roses; we should do much better to keep to the one noble wild Rose of Japan, *rugosa*. Moss Roses, for those that like them—few are worth growing—and those always on their own roots, if possible, in rather light, open, friable soil, not the heavy soil which is said and the Gallicas, Ayrshires, and Boursaults.

In the face of these facts the best I think I can do is to tell of Roses that have given satisfactory results here for years. No attempt is made to classify them, but I simply give a list of the proved kinds. No doubt individual taste will vary, but these may be depended on. Some of them, like the China and the Cramoisie, are very old and among the best:—

Buds of Tea Rose, Anna Olivier.

so often to be good for Roses. Scotch Roses were a group of some value in old days, before we had the splendid Roses of our day. Now they are of very slight value, except for the wild garden, and entirely without value for the flower garden. Of the polyantha Roses, I like much the wild kind, but the forms made from it are inferior and rarely worth growing. Noisettes are simply a source of futile division. The best of them might well be put with the Teas. And so with the Damask, which is of little value except as a curiosity. And the same may be said of the Bourbons, the Albas,

American Pillar, Anna Olivier, Antoine Rivoire, Bouquet d'Or, Brunoni, Carmine Pillar, Caroline Testout, Climbing ditto, Climbing La France, Climbing Niphetos, Climbing Papa Gontier, Climbing Perle des Jardins, Climbing Richmond, Comtesse du Caryla, *Cramoisie superieur*, Dorothy Page Roberts, Felicité Perpetue, Fellenberg, General MacArthur, G. Nabbonaud, Gloire de Dijon, Gustave Regis, Grand Duke of Luxemburg, Hugh Dickson, Irish Beauty, Irish Fireflame, Joseph Hill, Lady Ashtown, Lady Hillingdon, Lady Roberts, Lady Waterlow, Lamarque, La Tosca,

Laurent Carle, Laurette Messimy, Le Progrès, Lieut. Chaure, Mme. Abel Chatenay, Mme. Bérard, Mme. Eugene Resal, Mme. Hector Lenillot, Mme. Hoste, Mme. Isaac Pereire, Mme. Jules Grolez, Mme. Lambard, Mme. Léon Pain, Mme. Melanie Supert, Mme. Ravary, Marie van Houtte, Marquise de Sinety, Mrs Aaron Ward, Mrs A. R. Waddell, Mrs David M'Kee, Mrs E. G. Hill, Paul's Scarlet Climber, Papa Gontier, Pharisaer, Pink China, Prince

Rose, *Gloire Lyonnaise.*

de Bulgarie, Princesse Mary Mertchersky, Princesse de Sagan, Red Letter Day, Rêne d'Or, Rosa Anemone (*Sinica*), Rosa Bracteata, Simplicity, Souv. de Gustave Prat, Souv. de President Carnot, Theresa, Una, Wm. Allen Richardson, Zepherine Dronhin.

There are many beautiful single Roses, and now that some interest has been awakened in them, we may expect to see them more freely planted. Some are vigorous climbers which, allowed to have their own way and a branched tree to support them, will climb to a great height; others, sturdy and bushy, are suitable for planting in bold groups and masses, and rare ones will merit special care. They are free from the pests that infest the double Roses, and above all things when single Roses are present in the garden a roseless June will not happen even in the worst of seasons. Wild Roses are such rapid growers, even when not greatly encouraged, that they should not be allowed in well-made beds, like those for Rhododendrons, as they soon exterminate other things. Mine I put in an orchard, and they spread about so quickly that they are difficult to get rid of. It is best, therefore, to have a limited number of them only of the kinds one admires, avoiding anything in the nature of a miscellaneous collection.

R. ACICULARIS (The Needle R.).—A beautiful Wild Rose, which when leafless might well be mistaken for the Japan Rose, it is so armed with the sharpest needle-pointed spines, and it has the same stout,

vigorous, bushy habit of growth as *rugosa*. In flower and fruit it is quite different, and is a bright flowered kind, but early and long blooming. Siberia.

R. ALPINA (Alpine R.).—More worthy of a place in the garden than the varieties of which it is the parent—the Boursaults—it grows to a great size, with long, thornless shoots; does not make such a colour display as most kinds, but it is welcome for its earliness, and a bowl of its rosy-red flowers is pretty in the house in May.

R. BRACTEATA (The Macartney R.).—A little tender, but repays a little extra care, and is better for a wall, which in a sunny aspect is needed to bring it out in its full beauty. The plant is almost evergreen; leaves dark green and shining; the flowers large, milk-white, sweetly scented, of a pretty cupped form. China.

R. CAROLINA (Carolina R.).—Somewhat resembles *R. lucida*, but distinct, as it blooms during August, when most kinds are over, and it keeps flowering through September. It is a tall, upright grower, established bushes being 6 feet high. Its wood is smooth, with few spines; the leaflets are long and narrow, and the flowers come in clusters of a dozen or more among plenty of foliage, the buds when opening being rich crimson and the expanded flowers bright rosy-red and sweet-scented. The leaves when handled have a distinct and pleasant fragrance.

R. HUGONIS.—A very beautiful, yellow wild Rose, tall and free in Sussex. When I first saw it over my head I was much surprised. Native of W. China, it was first sent to England by Father Hugh Scallan, a missionary there. It flowers early, which is an added charm. *R. Hugonis* is the most vigorous of the yellow flowered species. It flowers early, usually from seed. May onwards. At Combe Warren a great rounded bush, 10 feet or more high and almost as much through, is each year shrouded with the delicate yellow flowers. Flowering, too, when quite small, it is a delightful plant to garden with.

R. INDICA (Indian R.).—In it we see those excellent qualities and continuous bloom that have been kept through numerous generations, and contribute so much to the charm of the Tea and Monthly Roses of the present day. Of this species there are two or three forms in cultivation, and though somewhat tender, if given some root protection, they are seldom killed. Like the Tea Roses, this species is ever growing, and blooms from early summer till late autumn.

R. LÆVIGATA (Cherokee R.).—This is tender, save in a few favoured spots in the south. Rose "Anemone" is from a cross with some Tea Rose, but it retains the fine foliage and form of flower of *R. lævigata*, and the dark brown shoots freely armed with thorns and prickles. It is of free growth, hardy, and blooms freely in May and June from its second year, the flowers 4 inches across, rosy-crimson on first opening, fading to a silvery rose threaded with darker veins. The plant climbs freely, and lends itself to pretty uses upon walls, pergolas and banks; it should have a sunny and sheltered place.

R. VIRGINIANA (Glossy R.).—One of the best Wild Roses, with leaves of a shining green colour, and just when our native and other early single Roses are passing away this comes into bloom in July and goes on for several weeks. Its flowers are large, opening flat, clear rosy-pink, sweet-scented, in clusters of from five to eight, succeeding one another, so that there is not usually more than one flower open at a time in a cluster. A few plants soon spread into a thick group, as it runs freely underground, and it is so easily increased by its suckers. Syn., *lucida*.

R. LUTEA.—This very distinct Rose is better known through the forms derived from it than in its wild form, pretty as that is, and it would be charming to grow on warm banks. There are two garden varieties, commonly called Austrian Briers, one with yellow flowers, the other orange-red, both beautiful for a sunny spot.

R. MACRANTHA.—An early bloomer and a showy kind. The flowers are large and beautiful, chiefly white, but flesh-tinted round the edges and in the centre with a tuft of fine yellow stamens. In the open ground it makes a thick spreading bush. Europe.

R. MACROPHYLLA.—Becomes a graceful open bush 10 feet or more in height, the branches in a young state being coated with a glaucous bloom, flowers, deep pink, 2 to 3 inches across, produced abundantly in early summer, followed later in the season by large clusters of bright red pear-shaped fruits.

R. MICROPHYLLA.—A Chinese species allied to *R. rugosa*. It is a sturdy bush, noteworthy for its large yellowish, very prickly fruits. Its stems, on the other hand, have very few prickles, and they are also distinguished by the peeling loose bark. The flowers are delicate pale rose, not very large, but very fragrant. When it is in bloom the bees and flies swarm more to this Rose than any other. It does not come true from seed, but can be increased by layers.

R. MOSCHATA (Musk R.).—It is a little tender and should have a good place, with shelter while young, but it is very vigorous, and usually soon repairs any

damage inflicted. Old plants grow more slowly and ripen better, so that hardiness increases. A good plant is strong enough to cover a high fence or wall, but it likes best to scramble about freely among other shrubs which give it support and shelter. The flowers come in July as spreading clusters of pure white with a yellow centre, thirty or more blossoms being often crowded into one mass, with nine or a dozen open at once. Each flower is large, opening wide and flat, with sometimes a pale flushing towards the edge of the petals. The musk-like fragrance is not marked unless in a moist atmosphere, such as after rain. The grey-green leaves have seven leaflets, and are scented when young.

pant climber, which will quickly climb a tree, cover a building, or, away from any support, spread into an enormous bush. It has long, spineless shoots clothed with glossy green leaves, blooming early in June; a mass of white flowers crowded in a pyramidal truss, with a powerful scent. The variety *grandiflora* is an improvement, with very large flowers and its leaves almost evergreen. It has all the vigour of the type, and its flowers cluster in an immense truss, pure white and sweetly scented.

R. POMIFERA (The Apple R.).—Among the Roses which claim our notice for the beauty of their fruits, none equal this old but neglected species. It is worth growing for its bright red fruit. Each fruit is 1

The Austrian Copper Brier.

R. MOYESI (Moyes R.).—The most startlingly beautiful wild Rose that has come to us for many years. It is splendid in colour and vigour, with its red bottle-shaped fruits. In Sussex it grows as freely as any Brier. The colour is not easy to describe. Excellent for trellis or as a single bush, or for any purpose for which a wild rose can be used. Native of W. China, it was found by Mr A. E. Pratt on the Tibetan frontier at an elevation of over 9,000 feet. Men talk of getting fine things by crossing this, but they will never get anything so good. There should be little or no pruning, the plant flowering on the previous season's growth.

R. POLYANTHA (Garland R.).—A ram-

to 1½ inches long, apple or sometimes pear-shaped, covered with bristles and surmounted by a crown of large glandular sepals.

R. REPENS (or *R. arvensis*) is the wild parent of the Ayrshire Roses. It is a free-growing plant, but requires some support to get it off the ground at first. We train it up stout Oak branches, and get it a few feet high, then let it ramble at will. For covering roots, banks, mounds, pillars, etc., these are excellent, forming at last huge tangled masses of the greatest beauty and elegance in the wild garden. The flowers are white or pale pink.

R. RUBIGINOSA (Sweet Brier).—It is a native Rose, but also distributed through

much of Europe and Asia, and, although often planted, is scarcely ever made enough of in country places. It is most useful for forming fences with Quick or even by itself on good banks, as it is so spiny that cattle, which do so much harm to almost every other kind of hedge plant, do not touch this, so that it swings careless in the field where they are. The plant ought to be grown by the thousand, and anybody with a few bushes of it can save the seed for this purpose.

R. RUBRIFOLIA (Red-leaved R.) should have a place for its lovely-tinted leaves and shoots; it has a rambling or climbing habit, but also grows into a large self-supporting bush or spreads nicely when pegged down. The flowers are red and small, the fruits purplish-red with soft flesh. Its chief charm, however, is in the colour of shoots and leaves. The young, strong shoots are purple-red overlaid with a pale grey bloom, whilst the leaves are of a peculiar glaucous colour brightly tinged with red. N. America.

R. RUGOSA (Ramanas R.).—It is a long and persistent bloomer, and reaches the zenith of its beauty when the secondary flowers come with the glowing orange and red fruits that have succeeded the first flowers. Then a second crop of ripe fruit appears late in autumn, when the leaves turn yellow, showing the Rose in another pretty aspect. It makes a good hedge, and where pretty dividing lines are wanted, it is one of the best for the purpose. There are purple, pink, and white forms, this last being lovely, and quite the best single white Rose of the non-climbers.

R. SERICEA.—It is a very pretty Rose both in flower and in leaf, and can be told from all other Roses by its shapely white flowers with four petals which are arranged in the shape of a Maltese cross, five being, of course, the normal number in this family. The leaflets are small and numerous, not unlike those of the Scotch Rose, and in one variety the young stems are quite red. North India. There is a strange form of this Rose from Yunnan, known as *pteracantha*, or the Great Spined Rose. It is remarkable for its stout ruddy stems, set throughout their entire length with broad wing-like spines, their effect unlike anything hitherto seen in the Rose family, and of remarkable brilliance in sunlight.

R. SETIGERA (The Prairie R.). — Is a climbing plant of vigorous growth, the leaflets, of which there are three to each leaf, being large for a Rose. It blooms in July and August, and is thus one of the latest of all the Wild Roses to flower. The flowers are large and showy, and of a deep rose, but without fragrance. This Rose is seen best planted in a large group, and, given a few rough roots or posts to climb over, it soon makes a large impenetrable thicket. The fruits are small as compared with other Wild Roses.

R. SETIPODA. — A bushy species of recent introduction from C. China (*Hupeh*), whose purplish rose-coloured flowers are freely produced in terminal corymbs. It is of shrub-like habit of growth, and reaches 6 or 10 feet high. June. Its fruit beauty, if less large and striking, is akin to *R. Moyesie*, and somewhat more brilliantly coloured. The fruits, too, are freely furnished with bristles.

R. SPINOSISSIMA (Burnet Rose). — A pretty native Wild Rose, which will grow and flourish in the lightest and hottest of soils, where many Roses fail. It is the

Sweet Brier. *Rosa spinosissima.*

parent of the Scotch Roses. The creamy white flowers of the wild plant are pretty and fragrant.

R. XANTHINA.—A charming plant for the rock garden, very like the Austrian Briers in general effect, but freer in growth and flower. Its flowers are small (only about 1 inch across), of a beautiful golden yellow, with deeper spots at the base of each petal. The stems are dwarf, slender, and very prickly, wreathed with flowers for a good part of their length. It flowers annually on the rockery at Kew.

R. WILLMOTTIÆ.—A new species from W. China, where it was found by Wilson when plant-hunting for the Messrs Veitch on the Sangan Mountains at elevations from 10,000 to 11,000 feet. It forms a densely branched shrub 8 feet or more high, furnished with elegant foliage. The solitary flowers are of a bright rose-pink, and are freely produced in June on the arching branches of the previous season's growth. Fruits roundish and

of orange-red colour. Quite hardy and very pretty.

The above is a choice of the best Wild Roses known to us for the garden or shrubberies and fences near the garden. There are many Wild Roses inhabiting northern and temperate countries, and many that have never been in cultivation.

ROSCŒA.—A small though interesting genus of tuberous rooted plants from China and the Himalayas, of easy cultivation if planted 4 to 5 inches deep in sandy loam. All are dwarf growing. The best known species is *R. purpurea*, with richly coloured flowers on stems 9 inches or so high. *R. Cantlioides* is somewhat taller growing, the erect leafy stems being terminated by a cluster of yellow flowers of delicate beauty. They are distinct from all else, and of a beauty quite apart. That last-named does not appear above ground till quite late in spring.

ROSMARINUS (*Rosemary*).—A beautiful shrub, *R. officinalis*, is not hardy enough anywhere, but in warm, rocky banks in our southern gardens it is useful; all like its fragrance, and the flowers are pretty when the plant is grown on dry soils. Where it perishes in winter in the open ground it may be grown against a wall. There are several distinct forms, one of erect habit known as *pyramidalis*; one with large pale flowers, and one with darker blue flowers; one with variegated foliage; and one, the best of all, known as *prostrata*, with quite a creeping habit and narrow leaves, very pretty for sunny walls or sheltered ledges of the rock garden. Cuttings and seed.

RUBUS (*Brambles*).—Trailing and often prickly shrubs, some of the best from America; the finest of these being the Rocky Mountain Bramble (*R. deliciosus*), quite unlike an ordinary Bramble, being without spines or prickles. It makes a rounded spreading bush about 4 feet high, and in June bears snow-white flowers about the size of Dog Roses, and like them in form. It is hardy in most gardens where the soil is light, and in cold districts may be grown against a wall, which it quickly clothes with a beautiful growth, and flowers more abundantly than as a bush. Always select for it the sunniest and warmest place in the garden.

R. BIFLORUS (Whitewashed Bramble).—Has tall wand-like stems often 10 feet or more in height, whitened with a mealy substance on the bark. Its white flowers are not showy, and are succeeded by edible, Raspberry-like fruits. *R. australis*, from New Zealand, is without true leaves, and prickly. In warm situations on walls it grows several feet high, but it is not fully hardy. Himalayas.

Among the best native Brambles are the beautiful double varieties of *R. fructicosus*, which flower late in summer. There are the double pink and the double white kinds, both known under various names; but the names of double pink and

Rubus deliciosus.

double white are sufficient. As they are forms of distinct species or varieties, they differ in habit, the double pink being much the stronger and more free flowering. When well placed the double pink makes a wide-spreading mass like the common Bramble, and gives from the middle of August till autumn an abundance of bloom, every flower being a rosette of delicate pink petals. The double white is a form of *R. tomentosus*, and its flowers are larger than those of the double pink, but less double. The double white and the double pink should be planted near each other, and will clothe banks or associate with bold rocks. Another fine Bramble is the Cut-leaved, or Parsley-leaved Bramble, which has a profusion of white blooms, succeeded by large delicious fruits. The Japanese Wine-

berry (*R. phœnicolasius*) is a strong-growing Bramble, the stems of which are covered with reddish hairs, and the leaves silvery-white on the under side. A group planted beside water is very fine in windy weather, when the under-surface is freely exposed. The pink and white flowers are followed by soft red fruits, like a little Raspberry. *R. sorbifolius* is also pretty, with stout erect stems of about 18 inches, bearing elegant cut leaves and large white flowers, followed by conical fruits of fine appearance but of poor flavour. Like some other Brambles, this grows well in partial shade. Some of the so-called American Blackberries, such as the Lawton and Kittaninny, do not succeed in our country. Almost all kinds should have their stems cut away after flowering, leaving only the new shoots of the season.

A few of the small kinds, such as *R. arcticus* (which grows a few inches high and bears numerous rosy-pink blossoms), the Cloud-berry, *R. Chamæmorus* (also dwarf and with white blossoms), the Dewberry (*R. Cæsius*), and *R. saxatilis*, are pretty in partially-shaded spots in the rock garden in moist peaty soil.

R. GIRALDIANUS.—No Bramble in cultivation produces so striking an effect, in my opinion, as *R. giraldianus*, named in honour of Giraldi, an Italian, one of the intrepid Jesuit priests in W. China, whence this shrub was introduced by Wilson in 1907. It grows about 7 feet high, the slender, drooping part of the stem being long enough for the tip to reach the ground. Having reached the soil, the tips there form curious thickened ends similar to those so frequent in wild British Brambles, and, taking root, form new plants.

R. NUTKANUS.—This is found from

Rubus nutkanus (the Nootka Sound Raspberry).

N. California to Nootka Sound, and is rather taller in growth than *R. odoratus*, the flowers pure white. They are partial to a moist soil, near the margins of a pond or stream. They are among the best shrubs for the wild garden, where in a short time they spread into large masses if in good soil and partial shade.

R. ODORATUS.—With large-lobed leaves, and from June till August large clusters of rich purple flowers. It may be used in the rougher parts of the rock garden, or in the wild garden, and is very hardy. Like the garden Raspberry, it sends up strong annual shoots, which in rich soils reach 6 feet, bearing scented leaves, the leaves and not the flowers being fragrant. There is no finer shrub for planting under the shade of large trees where the soil is not too full of roots.

R. SPECTABILIS (The Salmon Berry).—Has flowers of a bright red and very early. It is best in the rougher parts of the rock garden or for the wild garden, and grows well under trees or in underwood. N.W. America.

RUDBECKIA (*Coneflower*). — N. American plants, with showy yellow flower-heads, usually with a dark central cone, making striking plants for the hardy border, flowering in late summer and autumn.

R. CALIFORNICA.—Largest in size of flower and cone, the flower being often about 6 inches across, and the cone 2 inches high; leaves, flower-stalks, and roots are equally robust. The flowers come early in July; they have few and horizontal rays, and are solitary on the stalks, their size making up for their small number, and the whole plant having a majestic appearance, with its broad, plantain-like leaves.

R. HIRTA.—By Asa Gray said to be "annual or biennial," and it certainly requires frequent renewal from seed. Two-year-old plants begin to flower early in June, and continue gay through summer. It is well to select the largest and most golden flowers for seed. This species always attracts notice in my garden from the bright colour of the rays and the good contrast of the black cone.

R. LACINIATA.—Tallest of the Coneflowers, 7 to 10 feet high. The leaves are unevenly divided into narrow ribbons, or cut into larger lobes, different individuals varying much in leafage. The flower is large, the rays curved downwards so as nearly to touch the stalk, and the cone is greenish. Plants live many years without spreading much, but are easily divided, and self-sown seedlings come up round if the seed escapes the green linnets and chaffinches, which delight to eat it.

R. MAXIMA.—A handsome plant 6 or 7 feet high, having flowers densely set with broad golden rays produced in

August and September. The large glaucous oval and entire leaf at once distinguishes it from others of the genus. Native of the warmer States of America.

R. NITIDA.—The general habit of this is that of *R. laciniata*, but the leaves are less incised than in any of that species; the flowers, though smaller in outline, are more regular and plentiful, and have broader and more golden rays. They begin to open when *R. laciniata* is over, and continue into November.

R. PINNATA.—Flowers from July until hard frosts overpower it. It is not a long-lived plant, getting too hard and woody at the base to continue to break well, so it is better to keep a few seedlings on hand. Seed is abundantly produced and easily raised. Grows from 4 to 5 feet.

R. PURPUREA.—In this distinct Coneflower the ray florets are of a reddish or rose-purple hue, and the flowers are fully 4 inches across. When fully established the plants reach 3 to 4 feet high, and are effective on account of their free-flowering and erect habit. The plant only rarely produces seeds, and these are generally slow to vegetate, so much so that it is best rather to rely on careful division of the root to ensure maintaining a stock. Other kinds closely allied to this species are *R. pallida*, *R. angustifolia*, *R. purpurea intermedia*, a fine form with branching habit, and *R. p. serotina*.

R. SPECIOSA.—It is so well known that I need say little more than advise those, who wish it to succeed in hot and dry summers, to dress the surface with rich compost and to water it well, or it withers prematurely. The garden form, *speciosa conspicua*, comes into flower sooner, and gives a longer season for cutting.

R. SUBTOMENTOSA.—In this the flowers show hardly any raised cone; the disc is very black, and the golden rays, about an inch long, continue horizontal, so that it would hardly be taken for a Coneflower. It grows 4 feet high, flowering late and very freely. Division.

Excepting *R. maxima*, in a long gardening experience I have found no difficulty in maintaining a stock of all these Coneflowers. *R. pinnata*, *R. laciniata*, and *R. hirta* ripen plenty of seed every year. I never found ripe seed on any of the others, but they are all easily divided; the whole tribe likes a rich moist soil and a warm aspect.—C. W. D.

RUMEX (*Dock*). — The only one worth growing is our great native Water Dock (*R. Hydrolapathum*). Its leaves, sometimes 2 feet or more in length, form erect and imposing tufts; while its flowering stem, frequently 6 feet in height, has a dense, pyramidal panicle of an olive-fawn or reddish colour. In autumn the leaves change to a lurid red, a colour they retain for some time.

RUSCUS (*Butcher's Broom*).—These are distributed throughout Europe, North Africa, and temperate Asia. All the hardy kinds may be planted under the drip and shade of trees where few other evergreens could exist. Propagate by division of the roots. The *R. aculeatus* (Common Butcher's Broom) is a native of our copses and woods, with curious prickly leaves, or rather substitutes for leaves, and small greenish flowers in April, which are succeeded by bright red berries about the size of Peas. This dense, much-branched evergreen rarely grows more than 2 feet high, and its thick, white, twining roots strike deep into the ground. The sexes are apart in Ruscus, and to enjoy the handsome scarlet fruits the male and female plants should be mingled.

The Alexandrian Laurel (*R. racemosus*). — An elegant shrub with glossy dark green leaves, its stems valuable for cutting in winter. It is one of the best plants for partial shade, and should have deep loamy soil. S. Europe. Syn., *Danaë racemosus*.

RUTA (*Rue*).—The common Rue (*R. graveolens*) is not ornamental, but *R. albiflora* is a graceful autumn-flowering plant about 2 feet high, with leaves resembling those of the common Rue, only more glaucous and finely divided. The small white blossoms, borne profusely in large terminal drooping panicles, last until the frosts. In some localities it is hardy, but, unless planted against a wall, should generally have slight protection in severe weather. It is also known as *Bœnninghausenia albiflora*. Nepal. Another pretty plant is the Padua Rue (*R. patavina*), 4 to 6 inches high, with small golden-yellow flowers of the same odour as the common Rue, and the plant is about as hardy as *R. albiflora*.

SAGINA (*Pearlwort*). — The only species worthy of culture is the Lawn Pearlwort (*S. glabra*), a plant generally known in consequence of its failure some years since as a substitute for lawn grass, though it has not answered expectations. It is none the less a pretty little alpine plant, forming on level soils carpets almost as smooth as velvet, starred in early summer with little white flowers. It is multiplied

by pulling the tufts into small pieces and then replanting them a few inches apart, when they soon meet and form a carpet. Corsica. Syn., *Spergula pilifera*.

SAGITTARIA (*Arrowhead*).—Graceful water-plants not only charming at the waterside, but from their structure among the most interesting of hardy perennials. Their parts are strangely variable in appearance and structure—the roots being tuberous, fibrous, and stoloniferous (running); the leaves submerged and ribbon-like, floating or erect, and exceedingly variable in shape; the flowers are fertile or sterile, single or double. This variety of form is so confusing that uncertainty prevails as to the entire group, some botanists making a hundred species, which others reduce to about ten. There seems, indeed, to be little fixity of character, the same plant being unlike itself under changed conditions. Several kinds are now in cultivation, and no plants are more easily grown in shallow water, where they spread fast, the only care being to keep them from overrunning other things. Their tubers should be planted in mud with water from 6 inches to a foot in depth, though some kinds will make their way in deeper water. The plants are quite happy in partial shade, where the flowers last longer. The following are in cultivation :—

S. JAPONICA PLENA. — One of our best hardy water-plants, with large full flowers 2 to 2½ inches across and like a white Stock, gathered into whorls all the way up a stem of nearly 2 feet. The roots spread fast and will grow in water 2 feet deep, though 6 inches is deep enough for planting. The single kind is scarce, though the snowy flowers with golden anthers are very attractive, and the foliage lasts much longer than in our native kind.

S. LANCIFOLIA.—Of uncertain origin, with several other names. It is of robust growth, with stems 5 feet high and leaves prolonged into a narrow lance shape. The flowers are in whorls of three, the outer petals greenish flushed with rose, and the inner ones pure white, with a cluster of golden stamens. Syns., *S. gigantea* and *S. sinensis*.

S. MACROPHYLLA.—With large leaves and loose spikes of white flowers, standing about 3 feet high. Not only are the flowers larger than in any other kind, but the plant is worth growing for its fine leaves alone, which takes a rich autumn colour.

S. NATANS.—A very distinct kind from North America, with floating heart-shaped leaves and scanty single white flowers.

S. SAGITTIFOLIA.—The wild Arrowhead of our ponds and rivers, familiar in its graceful arrow-headed leaves and the pretty white flowers half an inch across, with purple claws and anthers. The double-flowered form is that mostly seen in gardens, with very full flowers about an inch across.

S. VARIABILIS. — The common Arrowhead of N. America; a very variable plant, with a number of distinct forms. It comes near our own kind, but the flowers differ in their greenish centre, free from the purple shading of *sagittifolia*. Among the many varieties are *hastata*, *latifolia*, *obtusa*, *gracilis* — a dwarf form rarely exceeding 12 inches in height, and one with double flowers.

SALISBURIA (*Maiden-hair Tree*).—*S. adiantifolia* is a beautiful tree in all stages and at all seasons, perhaps most attractive during the autumn, just before the leaves drop, since the foliage assumes then a bright yellow hue. A rather deep, fairly moist soil of a loamy nature seems to suit it best, but it is not very particular as to soil: fine trees may be seen in old gardens. Its fruits are said to be eaten in China and Japan, but they are rarely produced here. There are two or three varieties of the tree, and when raised from seed, as it always should be, there are individual differences. Syn., *Ginkgo biloba*.

SALIX (*Willow*). — Large and medium-sized trees, shrubs, and even alpine trailers of northern and temperate countries, mostly hardy and of singular beauty and interest for our gardens and home grounds, in which they are much neglected. Notwithstanding the number of trees in the country, I doubt if there is a more picturesque one than the Babylonian Willow, which is not common in many districts about London, although it is by the river and in the eastern counties. There are many, however, who plant this who do not care for handsome Willows of erect habit, but, as we think, more beauty of colour, such as the scarlet-barked or Cardinal Willow, and even the old yellow Willow. Of late years a number of other Weeping Willows have been propagated in Germany and elsewhere, so that we are no longer confined to the old Weeping Willow, which was apt to be cut down occasionally in

hard winters. When the gardener plants a Willow, it is generally some curious one with a mop head, like the "American" Weeping Willow. Country gentlemen should therefore take the Tree Willows under their own care, and plant them in bold groups and colonies here and there, by water or in wet or marshy places. A marshy place planted with underwood formed of the yellow or red Willow would be charmingly picturesque in winter —indeed, at all times — and there is no difficulty in getting any of these Willows by the hundred or thousand. In places which are much haunted by the rabbit, young Willows of these kinds go very rapidly, and, planted by streams in meadows where there are cattle, they are nibbled down, so that in certain districts a little care may be wanted to protect them. None of the Willows here mentioned should be ever grafted. I have skeleton Willows alongside some ponds, the sad remains of grafted Willows which were interesting and little-known kinds, all grafted on the common Sallow (*Salix caprea*). The grafted portion gradually died; the stump on which they are grafted remained sound, and from it have come the vigorous shoots of many Withies. Inasmuch as the whole country and the woods near have many of the same tree, which seeds everywhere, this unsought plantation of a common tree by garden ponds is far from a gain. "As easy to strike as a Willow," is a proverb among gardeners, and there is no good reason for grafting these plants. The graceful Willow, called in our gardens the American Willow, is invariably grafted on the Sallow, and if not watched and the suckers removed, will quickly perish; but if a shoot of this plant be hanging into water it quickly roots, showing how easily the trees could be increased if nurserymen would take the trouble to do it in the right way. The objection to the grafting is, first of all, the frequent death of the tree; secondly, falsified and weak growth, and where it does not die, endless trouble; thirdly, we lose some of the true uses of the tree, the habit not lending itself always to grafting on the standard form. Why should we not be able to use the Weeping Willows as rock or bank plants, not on standards, in which form the growth is often less graceful than on our own root trees? Though we think the finest Willows for effect in the landscape are the Tree Willows, in all garden ground the Weeping Willows are likely to be the most planted, and we should guard against an excessive use of them in home landscape owing to this same weeping habit. One large isolated Weeping Willow, or a group of such trees on the margin of water, gives a much better effect than a number dotted about. Further, the Weeping Willow ungrafted when isolated has an advantage over many other weeping trees in its beauty of habit; all is grace and softness, like a fountain of water, the branches rise lightly into the air to fall again gracefully. On the other hand, in most other weeping trees artificially made by grafting on standards there is none of this lightness of aspect and of form. Willows are admirably suited for giving us an abundance of shade where this is desired, and they are among the hardy trees that thrive in and near towns. Only the Willows most effective in the home landscape and in the home woods are named here. Some small and alpine Willows are interesting for the rock garden, but they are more suited for botanical collections. The dwarf creeping kinds grown in gardens are—*S. herbaceæ*, *S. lanata*, *S. reticulata*, and *S. serpyllifolia*, all natives of the northern parts of Europe and America. They grow well among stones in ordinary garden soil. Sometimes certain of these dwarf forms are grafted, generally on the Sallow, on which their lives are very short, and it is impossible for us to judge of the value of such kinds as *S. repens* var. *argentea* and *pendula* and *S. cæsia* var. *Zabeli pendula*, when stuck on the ends of sticks of a wholly different nature.

S. ALBA (White W.).—A graceful and stately tree of the marsh lands and river valleys throughout Europe and Asia, common in Britain, and often beautiful. It has several varieties, particularly a silvery one, and a red one (*britzensis*). Sometimes 80 feet or more high, with a trunk diameter of 6 to 7 feet.

S. BABYLONICA (Weeping W.).—A beautiful weeping tree, and the best known of the Willows of this character, though not the hardiest that we now know, and sometimes liable to be cut off in cold districts. There is a crisp-leaved variety. It is called Babylonian because it was thought to be the tree under which the Jews sat down to weep on the banks of the Euphrates River, but it is now known that the tree which grows on the banks

of the Euphrates and resembles a Willow is a Poplar, having narrow Willow-like leaves. Japan and China. *S. Salomoni* is a variety of this, and seems to be a

The Weeping Willow.

free-growing and most graceful Willow, but with us not old enough to show its true form. It is a very rapid growing tree, as, indeed, most Willows are in river-bank soils.

S. BLANDA (Hybrid Weeping W.).—This is a vigorous and fine Weeping Willow, though not yet long enough in our country to show its true habit. It is thought to be a hybrid between the Babylon and Crack Willows, having regard to its characteristics. The leaves, long even at the base of the branches, are 3 to 5 inches long by less than 1 inch across.

S. CAPREA (Withy, Sallow, Goat W.).—The commonest Willow, often a round-headed low tree, in our woodlands, and the one which bears the pretty catkins early in spring, and gathered at Easter, called Palm branches. It is used in nurseries throughout Europe as a stock to secure the greatest growth of various Willows, and usually with a fatal result to the life of each kind grafted on it. The Kilmarnock Willow is a weeping variety of this Willow.

S. ELEGANTISSIMA.—A rapid-growing and handsome weeping tree. Willows have a curious way of crossing and intercrossing, hybridising themselves in all sorts of ways, and it is difficult to account for the origin of this; but from a garden point of view this is not of so much consequence. It is tall, with long and pendent branches, a yellowish-green, often stained with russet, with a more spreading habit and a larger crown than *S. babylonica*.

S. FRAGILIS (Crack W.; Withy).—A fine and often picturesque tree of our river valleys, and a native of N. Europe and W. Asia, including in it a variety of forms, among the best being the Basford Willow and the broad-leaved form, *latifolia*. *S. Russelliana*, the Bedford Willow, is considered a hybrid between this and the White Willow. There is also an orange-twigged form of the Crack Willow (*S. decipiens*).

S. PENTANDRA (Bay-leaved W.).—A glossy leaved distinct looking Willow, sometimes almost a tree; a native of Britain, mostly towards the north or west, and the latest flowering Willow.

S. PURPUREA (Purple or Bitter Osier).—A British Willow of some grace of habit, though not quite a tree, and most interesting from being the origin of the Willow called American by mistake. It is really a variety of this species, and a very beautiful weeping bush, which, however, is often lost by being grafted on the common Withy, which soon kills the tree. This Willow and its varieties and hybrids are much grown in Osier beds for basket-making, though not so much as the Osier. The pendulous form of the Purple Weeping Willow, commonly called the American Weeping Willow, is not very high, but has pretty grey slender leaves, with long flexible twigs. It is usually grafted and grown as a single, umbrella-headed tree although it is much prettier grouped or massed beside the water, and it is only then that one gets its extreme grace. This Willow is grafted on the common Sallow—a usually coarse-growing Willow of which the shoots spring from below the graft. If let alone for a year or two they would soon make an end of the Purple Willow, but by continually removing them one may keep the tree alive.

S. ROSMARINIFOLIA (Greybush W.).—A graceful bushy Willow of a nice grey colour, especially for groups near water or in moist ground; hardy and of easy culture. Europe.

S. VIMINALIS (Osier).—A distinct and native Willow, frequent in wet places in woods and Osier beds, rarely planted in gardens, the leaves and branches are very fine in form. It is the Willow most used for basket-making.

S. VITELLINA (Golden W.).—Sometimes classed with the White Willow by botanists, but from a planter's point of view it is a distinct tree, never so large as the White Willow, but effective in the colour of its yellow branches and twigs in the winter sun. While old trees of this often become good in form and occasionally pendulous, there is of recent years a distinctly pendulous variety, *S. pendula*, which is very graceful and precious indeed, and quite hardy, which should never be grafted. Some of the red twigged Willows, such as that called the Cardinal Willow, belong to *S. vitellina*. The twigs

are used to a great extent for packing in nurseries and tying fruit trees in gardens.

SALPIGLOSSIS.—*S. sinuata* is a beautiful plant of the Solanum family, and one of the finest of half-hardy annuals; it is slender, and has an erect stem, 1 to 2 feet high, bearing large funnel-shaped blossoms that have dark veins on a ground which varies

Salpiglossis sinuata.

from white to crimson, yellow, orange, or purple, and intermediate shades. As the colour of the blossoms is so variable, the plant is known as *S. variabilis*, and its varieties have Latin names according to their tints. *S. sinuata* thrives in light, rich, sandy loam, and should be treated as a half-hardy annual. Chile.

SALVIA (*Sage*).—For the autumn garden, few plants are more useful than the Sages, with their showy spikes of flowers. They are easily raised from seed or cuttings, they grow in almost any soil, and give good colour during several months. They are found in all parts of the world, the tender shrubby kinds in the mountains of tropical America, and the hardier perennial sorts in Europe and Asia.

S. AZUREA.—A perennial from North America, and one of the finest in its flowers, borne as dense spikes of a beautiful pale blue, during September and October. Its habit is vigorous, with stems long and straight, and it flowers rather too late to be always good with us. There are several forms of this plant, drawn from different parts of its area, including *grandiflora* (syn., *S. Pitcheri*), with down-covered leaves and stems and denser spikes, and *angustifolia*, with narrow leaves and longer spikes of flower. Though often flowered under glass, these plants thrive in the open border in mild districts, and are very useful for cutting.

S. COCCINEA.—This graceful plant covers a wide area in America, and though small the flowers are bright and well displayed. It is excellent for borders, and a true perennial, though often treated as an annual. The habit and leaves are neat, with bright scarlet flowers in airy spikes of 12 to 18 inches, prettily set on dark hairy stems, lasting for many weeks and good for cutting.

S. GRAHAMI.—This good old kind forms a handsome bush, bearing small bright crimson flowers in light heads during summer. The stems being woody, they last well when cut, and are pretty in vases. It is hardy in the milder parts of Britain, but needs a good place against a wall if it is to flower well. There are varieties with white flowers, and shades inclining to scarlet and purple.

S. HIANS.—A hardy perennial from Cashmere, growing 18 inches high, with large hairy leaves like the Clary, and fine violet-blue flowers with a pure white lower lip, and carried in bunches of six together. Free in growth and flower, it is one of the best border Salvias.

S. HORMINUM (Bluebeard).—A useful annual kind from the south of Europe, of dwarf spreading habit, with oval or wedge-shaped leaves and showy clusters of coloured bracts around inconspicuous blue flowers. These showy clusters are produced on every shoot and last fresh for a long time, their colour carrying from white to reddish-violet and deep purple, according to the variety.

S. OFFICINALIS (Common Sage).—Apart from its value as a garden herb, this is good as a border plant when covered with its flowers, either purple, blue, or white. There are several garden varieties with beauty of leaf, such as *aurea* with golden leaves, *crispa* (in which they are finely curled), and others in variegated colours.

S. PATENS.—One of the best plants in cultivation, the intense blue of its flowers making it a charming object. Though tender in most gardens, the tuberous roots are easily wintered in a frost-proof place, and increase is easy from seed or cuttings rooted in early spring.

S. ROEMERIANA.—A bright dwarf plant from Texas, of such neat growth as to be well fitted for edgings or the front of borders. It flowers early, and the deep crimson flowers are continued through several weeks. Increase by seed or cuttings, which should be wintered under glass.

S. SCLAREA (Clary).—One of the old plants long grown in British gardens, and

still valued in country districts for brewing herb-wine. It is a biennial from the south of Europe, with clammy hairy stems, ample heart-shaped leaves, and bluish-

Salvia patens.

white flowers in August. A strong form of this, known as *bracteata* (*gigantea*), bears pale mauve-coloured bracts; and *S. Forskohlei*, which comes very near *Sclarea*, shows a blending of violet, blue, and white.

S. SPLENDENS. — This is the most showy of the family, in its clear green foliage and glowing scarlet flowers. A native of Brazil, it needs care in winter; if in too low a temperature the roots perish, and if too warm the plants become weak and liable to red spider. The old plan was to take cuttings in autumn and winter them under glass, these plants flowering earlier than the more vigorous seedlings. From careful selection, however, there are now good early-flowering varieties which come fairly true from seed, and (except it be for a small stock of the best named kinds) this is the best means of increase. These forms are vastly superior to the original plant, which, besides being of ungainly habit, had few and small flowers.

Two kinds rising to a good height are *grandiflora* and *gigantea*; though Fanfare and Feu de Joie are fairly tall, they begin to flower early; Gloire de Stuttgart and Rudolph Pfiitzer are shorter; and Boule de Feu, Alfred Rageneau, Bolide, Phare Poitevin, and Lord Fauntleroy are very dwarf kinds, flowering through a long season and admirable for massing in the front of borders.

S. TURKESTANICA. — Hardy perennial kind from W. Asia, with angular stems 3 feet high, ample foliage which is strongly fragrant, and large white flowers gathered in whorls and surrounded by pale pink-edged bracts. The plant is hardy and vigorous.

S. ULIGINOSA.—A tall and graceful plant, good blue, hardy in Sussex. A fine border plant, of easy culture.

S. VIRGATA.—A good kind, where its abundant blue flowers and violet bracts give good effect in July and August. The plant is of medium size, hardy, and easily increased by seed or division.

SAMBUCUS (*Elder*).—Our native Elder is little valued in gardens, yet a well-grown tree, laden with its clusters of creamy-white blossoms or a profusion of purple fruits, is not without effect. Added to this, it will hold its own in any poor, dry soil, the leaves are seldom attacked by insects, and all the kinds bear hard pruning, and are of easy increase from cuttings.

The wild kinds are perhaps less important for our purpose than their garden forms.

S. CANADENSIS.—N. America. Was introduced long ago, but until recently has remained almost unknown. In full flower it is handsome and at its best in August, when most flowering shrubs are past. Though less woody than the common species, it attains a height of 6 to 12 feet, with bold, handsome leafage and flattened clusters of creamy-white fragrant flowers, which measure sometimes as much as 18 inches across. A new and beautiful form of this shrub has recently come to light in *S. canadensis acutiloba*, the leaves of which are cut into segments as fine as any fern-frond. Though perhaps not yet to be had easily, it will give a new charm to our collections of hardy shrubs.

S. EBULUS (Dane-wort).—An herbaceous Elder from N. Africa, China, and Europe, including the British Isles. The popular name refers to the legend that the plant first sprang from the blood of Danish invaders. It is a rough, rank-smelling weed, growing from 2 to 4 feet high, with finely-cut leaves and fine heads of flowers. Its main value is for dry banks in the wild garden or in coverts.

S. GLAUCA.—A little-known kind from western N. America, where it is said to form a tree of 30 to 50 feet. In this country it does not appear likely to be of great value. The name is derived from the glaucous bloom with which the berries are covered, which is so intense that though really blackish they appear to be bluish-white.

S. RACEMOSA (Scarlet Elder).—Although not a native of this country, *S. racemosa* occurs wild throughout much of the northern hemisphere. In appearance the Scarlet Elder somewhat resembles our own species, but is readily known by the flowers expanding much earlier, and the bright red berries, which ripen long in advance of the Common Elder. A cool, moist soil and a sunny spot seem to suit the Scarlet-berried Elder the best.

SANGUINARIA (*Bloodroot*). —*S. canadensis* is a pretty and distinct hardy plant, its thick creeping rootstocks sending up glaucous leaves about 6 inches high; the flowers, borne singly on stems as high as the leaves, are 1 inch across, white, with a tassel of yellow stamens in spring, in good-sized tufts, having a pretty effect. Sometimes the flowers are pinkish. It is strongest and best in moist peaty bottoms in woods or shrubberies. It may be increased by division in autumn, but its fleshy stems must not be kept long out of the ground. Poppy family. Nova Scotia, Canada, and westwards and southwards on the mountains.

Sanguinaria canadensis.

SARCOCOCCA (*The Hardy Sarcococcas*).—Are neat and pleasing evergreen shrubs possessed of but a modest flower beauty, though of more than ordinary value, because of their suitability to shaded positions and their rich green lustrous foliage. They are also of high utility for cutting, lasting long and well in the house where their refreshing shining green is ever welcome. The most notable are *S. humilis*, of neat tufted habit, 1½ feet high, flowers white, fragrant, succeeded by blue-black fruits. *S. ruscifolia* is 2 feet or more high, of dark lustrous green, flowers milk-white, fragrant, and vying with the Alexandrian Laurel for its utility in the cut state. The special value, however, is because of their success when planted under trees where so few plants thrive. They grow from the base after the style of the Butcher's Broom. Readily increased. China.

SAMOLUS.—*S. littoralis* is a pretty trailing plant, with long slender stems, small evergreen foliage, and numerous pink blossoms in summer. It thrives in the bog garden or moist spots in the rock garden in a peaty soil. New Zealand.

SANTOLINA (*Lavender Cotton*).—Dwarf, half-shrubby plants, of neat habit and pretty hoary foliage. One of the most distinct and useful of them is *S. incana*, a small grey shrub, with close habit and narrow leaves covered with dense white down. The pale greenish-yellow flowers are small, not showy, but the plant is useful from its form and silvery hue for groups and edgings, growing readily in ordinary soil on the level border or on slopes of the rock garden. Other species of Santolina suited for rock gardens are *S. pectinata* and *S. viridis*, which form bushes something like the Lavender Cotton. *S. alpina* is of more alpine habit, forming dense tufts close to the ground, from these arising slender stems bearing yellow button-like flowers. It grows in any soil, and may be used in the less important parts of the rock garden. Division. Cuttings of the shrubby species.

S. CHAMÆCYPARISUS, is a dwarf grey plant, effective in borders or as a bold edging plant.

SANVITALIA.—*S. procumbens* is a hardy annual from Mexico, with trailing branches and bright yellow flowers. In the single-flowered kind the blossoms have a dark purple centre, but in the double (*S. procumbens fl.-pl.*), which is by far the showier, they are a bright yellow. *S. procumbens* flowers from July till late in September, and owing to its dwarf compact growth it is useful for masses in beds or for the front rows of borders, or in suspended baskets, as the slender branches droop gracefully over. It may be sown in any ordinary garden soil—in autumn for spring flowering, or in March and April for summer flowering.

SAPONARIA (*Soapwort*).—Perennial herbs and alpine plants or annuals of the pink family.

S. CÆSPITOSA.—A neat little alpine perennial, good in the higher regions of the C. and E. Pyrenees, flowering in August, but in the lowlands its beautiful rose-coloured blossoms appear towards the end of June. It forms rosettes of linear leaves, thick, glabrous; the flowers, forming a thick cluster, are supported by short stout stems. This graceful little plant is valuable for the rock garden. A sandy soil suits it best, and it endures our winters.

S. CALABRICA.—A prostrate hardy annual, 6 to 9 inches high, its slender stems covered with small pink blossoms all the summer. Seeds may be sown in the open border in April, or earlier in heat if bloom is required early in the season, in rich sandy loam.

S. LUTEA.—A little rock plant, 3 to 6 inches high, with narrow leaves like those of the Alpine Catchfly and a neat tufted habit. The pale yellow flowers come as close woolly heads in early summer. Italy.

S. OCYMOIDES.—A trailing rock plant, with prostrate stems, its rosy flowers completely covering its leaves and branches in early summer. It is most valuable for clothing arid parts of the rock garden, where a trailing plant is desired, as the shoots fall over the face of the rocks and become masses of rosy bloom. It is also excellent for old walls, and the seed should be sown in mossy chinks where a little soil has gathered. It thrives in ordinary soil, and is often a good dwarf border plant. Two or three garden varieties are now grown, the best being *splendens*, with much brighter flowers, *alba*, with pale flowers, best in partial shade. Seeds and cuttings. S. and C. Europe.

S. OFFICINALIS (Soapwort).—This is a stout native plant about 2 to 4 feet high, with large fragrant blossoms, usually rose-pink, the double variety being best. A third-rate plant, it should not be planted in select borders, but is pretty for rough places in the hedgerows and wild garden, growing in any soil. Division.

SARRACENIA (*Huntsman's Horn*).—This singular plant, *S. purpurea*, belongs to a family of Pitcher-plants, natives of N. America, it being the hardiest, and handsome when well grown. Its curious leaves, hollowed like a horn, are blood-red in colour, and form a compact tuft 1 foot or more in height and the same in breadth; the flowers, singular in shape, are not very showy. It is a good plant for the bog garden or for damp spots in the rock garden, in an open and fully-exposed position with the choicer bog plants, in fibrous peat well mixed with Sphagnum Moss, which is common in marshy places. A layer of living Moss should be placed round the plant to keep it moist. The plant is hardy under these conditions, but precautions should be taken to prevent birds from disturbing the soil and exposing the roots. *S. flava*, the hardiest species next to *S. purpurea*, is rarely satisfactory in the open air, but does well in favoured spots. Other species, including *Drummondi*, *psittacina*, *rubra*, and *variolaris*, do well in the open air in some parts of Ireland if covered with a thick layer of moss in hard weather.

SASSAFRAS (*Ague Tree*).—*S. officinale* is a distinct and remarkable tree, sometimes growing over 100 feet high, with a trunk 6 feet or more in diameter, and a rough aromatic bark in sandy soils in New England, Canada, and westwards and southwards. The leaves are three-lobed, and vary much in shape. In our country this plant is best in warm soils similar to those in which it grows in its own, as our cool summers are less likely to ripen the wood. Syn., *Laurus sassafras*.

SAXIFRAGA (*Rockfoil*).—This genus includes perhaps more true alpine flowers than any other. In the Arctic circle, in the highest alpine regions, on the arid mountains of S. and E. Europe and N. Africa, and throughout the length and breadth of Europe and of N. Asia, they are found in many interesting varieties of form and colour. One might expect them to be as diffi-

cult of cultivation as most alpine plants, but they are the easiest to grow of all. The most ordinary form is the Mossy or *hypnoides* section, of which there are many kinds in cultivation. They are admirable for the fresh green hue with which they clothe rocks and banks in winter. Next to these we may place the very extensive silvery group. These have their greyish leathery leaves margined with dots of white, so as to give to the whole a silvery character. This group is represented by such kinds as *S. aizoon* and the great pyramidal-flowering *S. cotyledon* of the Alps. The London Pride section is another of some beauty, the plants thriving under ordinary conditions in lowland gardens, and soon naturalising themselves in lowland woods and copses. But the most brilliant are the purple Saxifrage (*S. oppositifolia*) group and its near allies. Here we have tufts of splendid colour in spring with dwarfness and perfect hardiness. The large leathery leaved group, of which the Siberian *S. crassifolia* is best known, is also of much importance, the plants thriving in ordinary soil and on the level ground. There are various minor groups. Such of the smaller and rarer alpine species as require any particular attention should be planted in moist sandy loam mingled with grit and broken stone, and made very firm. Very dwarf and rather slow-growing kinds, like *S. cæsia* and *S. aretioides*, should be surrounded by half-buried pieces of stone, to prevent their being trampled on or overrun. Stone will also help to preserve the ground in a moist healthy condition in the dry season, when the plants are most likely to suffer. Very dry winds in spring sometimes have a bad effect when such precautions are not taken. The Saxifrages, or Rockfoils, are such an enormous genus of plants in the northern and temperate world, and so many species in gardens have lately been added to, in the shape of numerous hybrids, that for these and various reasons it is impossible that any garden, generally speaking, could grow so many kinds, and as the best and rarer kinds can only be grown in rock gardens, their shortness of bloom excluding them from the flower garden, the result is that only a limited number can be grown with profit.

The following are among the most important cultivated kinds, though the list excludes many species that are difficult to grow or to procure, and which are found only in very full collections :—

S. AIZOIDES.—A native plant, very abundant in Scotland, the north of England, and some parts of Ireland, and generally found in wet places and by the sides of mountain rills or streams. At the end of summer or in autumn it has an abundance of flowers, ½ inch across, bright yellow (inclining to orange in the form *aurantiaca*) dotted with red towards the base. Although a mountain plant, it is easy to grow in lowland gardens in moist ground. Division.

S. AIZOON.—A good rock, border, and edging plant. Plants established for two or three years form grey-silvery tufts, which do not flower so freely as the wild plants, but this need not be regretted, as it is the silvery mass, and not the flowers, that is sought. There is a host of named varieties. *S. a. balcana*, pink spotted, and *S. a. rosea*, are very desirable forms. Division in spring.

S. ANDREWSI.—Among the green-leaved Saxifrages there is no better kind than this. Its flowers are freely produced, prettily spotted, and larger than those of *S. umbrosa*. The plant is finer in the rock garden than London Pride, grows as freely on any border soil, and merely requires to be replanted occasionally, when it spreads into very large tufts, or to have a dressing of fine light compost sprinkled over it annually. A distinct variety, *Guthrieana*, is from the Pyrenees.

S. APICULATA.—Apart from these there are other varieties showing minor differences of leaf and times of flowering. Recently, and almost simultaneously, in different collections pure white sports of these *apiculata* forms have appeared, differing in nowise except the colour of the flowers. Of easy culture, free growth and flowering, they are welcome additions.

S. ARETIOIDES.—A real gem of the encrusted section, forming cushions of silvery rosettes about ½ inch high. It has rich golden-yellow flowers in April, on stems a little more than 1 inch high, which remind one of the flowers of *Aretia vitalliana*. *S. aretioides* require a moist and well-drained soil, and, being so tiny, must be protected from coarser neighbours. There is a pretty form of it with pale yellow flowers called *primulina*. It is a rarity and a great improvement on the type. Seed and careful division. Pyrenees.

S. BIFLORA.—A dwarf kind coming near *S. oppositifolia*, but larger in growth and in its rosy flowers, fading to violet and clustered loosely in twos and threes. It grows in the loose, moist grit of the alpine ice fields, flowering as soon as the snow melts in June.

S. BOYDII.—A presumed hybrid of

burseriana and *aretioides*, and one of the most beautiful of yellow-flowered Saxifrages. It is, indeed, only eclipsed by *Faldonside*, the queen of the yellow-flowered set, which occurred as a seedling from the original *S. Boydii*. Of the two, *Faldonside* is the least exacting in its requirements. Both should be grown in gritty, well-drained loam, and are readily increased by means of cuttings. The plant

seriana soon forms good-sized tufts in the open border or in the rock garden, but prefers a dry sunny situation and calcareous soil. All lovers of hardy spring flowers should possess it. There are two or three distinct forms which differ from each other chiefly in habit or time of flower. Readily increased by cuttings in the spring. Austrian Alps.

S. CÆSIA.—Resembles an Androsace in

Saxifraga pyramidalis (the great alpine Rockfoil).

known as *S. Boydii alba*, while very desirable, has nothing in common with the others named. All were raised by Mr James Boyd of Melrose.

S. BURSERIANA.—None of the Rockfoils surpasses *S. Burseriana* in vernal beauty. The blossoms are borne singly on slender red stalks, which rise 2 or 3 inches above the silvery tufts, and are pure white, the margins of the overlapping petals elegantly frilled or crisped. They appear freely in January and February. *S. Bur-*

the neatness of its tufts. On the Alps it covers the rocks and stones like a silvery moss, and on level ground, where it has some depth of soil, develops into beautiful little cushions 2 to 6 inches across. It has pretty white flowers in summer on smooth thread-like stems, 1 to 3 inches high. Though a native of the high Alps and Pyrenees, it thrives in our gardens in very firm sandy soil, if fully exposed and well watered in summer.

S. CÆSPITOSA.—A dwarf kind forming a

dense carpet arranged in neat tufts and studded in summer with white blossoms. It succeeds in almost any situation in any garden soil, is useful for margins to herbaceous borders, and makes a beautiful covering for moist banks. It is one of the most variable of Saxifrages, its most distinct form being *purpurea*, with rosy flowers.

S. COCHLEARIS.—Among summer-flowering Saxifrages none is more desirable than this graceful, easily-grown species from the Maritime Alps. The pure white flowers issue in elegant sprays from silvery rosettes, and reach 9 inches high. There are several forms of the plant, the most charming being *S. c. minor*, which in gardens does duty for *S. valdensis*. It forms dense hillocks of hoary rosettes, the dainty sprays of white flowers appearing in June. A good crevice plant and excellent for rock walls. Both succeed well in loam and old mortar rubble.

S. CORDIFOLIA.—A Siberian plant differing in aspect from the ordinary dwarf Rockfoils, having ample heart-shaped evergreen leaves on long and thick stalks. Its clear rose-coloured flowers in early spring are arranged in dense masses, and half concealed among the great leaves, as if hiding from the cutting breath of March. *S. cordifolia* and its varieties flower in any soil and position. These Saxifrages are perhaps more fitted for association with the larger spring flowers and herbaceous plants than dwarf alpines, and may be naturalised on banks, in wild sunny parts of the pleasure ground, or by wood walks. They may also be used with effect near cascades, or on rough rock or root work, or on the rocky margins of streams or artificial water; in fact, they are the fine-foliaged plants of the rocks. There are several handsome varieties of *S. cordifolia*, the finest of all the group being one called *purpurea*. No plant is handsomer or more imposing when in flower, or affords a greater leaf-beauty in autumn and winter.

S. COTYLEDON (Pyramidal Saxifrage).—This embellishes with its great silvery rosettes and elegant pyramids of white flowers many parts of the great mountain ranges of Europe, from the Pyrenees to Lapland. It is the largest of the cultivated Saxifrages, and also the finest, except *S. longifolia*, the linear leaves of which it does not possess. There is considerable difference in the size of the rosettes, which when grown in tufts are generally much smaller than in isolated specimens. The flower-stem varies from 6 to 30 inches high, and about London, in common soil, often reaches 20 inches. In cultivation the plant usually attains a greater size than on its native rocks.

S. CYMBALARIA.—Little tufts of this Rockfoil form in early spring masses of bright yellow flowers set in light green, glossy, ivy-like leaves, the whole not above 3 inches high. Instead of fading, it preserves its little rounded pyramids of golden flowers until autumn, when it is about 12 inches high. It is an annual or biennial, sows itself abundantly, and is suitable for moist spots on or near the rock garden or on level ground, and in large pleasure grounds is readily naturalised on the margins of a rocky stream and elsewhere.

S. DELAVAYI.—A recent addition to the broad-leaved or Megasea Rockfoils, and probably the most brilliant flowered of them all. Quite hardy, too, and an evergreen assuming rich leaf colouring in autumn and winter, it is of value for these reasons also. The flowering scapes are a foot high or thereabouts, the drooping flowers in handsome umbels of richest wine-red on opening, though paling somewhat later. In general aspect, vigour, and refinement it is about midway between *crassifolia* and *cordifolia purpurea*, and a most desirable kind. It is happiest in cool loam and leaf-soil with exposure, though not the least fastidious. March-April. China.

S. DR RAMSEY.—Said to be a hybrid of *S. cochlearis* and *S. longifolia*, this excellent kind may be likened in habit to a small compact growing *S. cotyledon* form. A most genially-disposed plant and an indispensable. Flowers fragrant, pure white, copiously spotted with pink, and produced in elegant sprays 6 to 8 inches high. Flowers in June; readily increased by offsets.

S. ELIZABETHÆ.—A garden cross of fine habit, with soft yellow flowers on red stems, early in spring. It grows quickly and is quite one of the best early kinds. There are several forms—seedlings probably—of this plant, varying slightly in flower and habit, though more particularly in time of flowering, the later-flowered ones being of distinct value. Those known as *Godseffi* and Mrs Leng are not far removed from *Elizabethæ*. All have yellow flowers, are easily grown, and may be increased freely by cuttings or division in spring.

S. FORTUNEI.—Has large panicles of white blossoms which rise in profusion from rosettes of dark green rounded leaves. It is a desirable plant, for it flowers in autumn and is not particular as to treatment.

S. GRANULATA (Meadow S.).—A lowland plant, with several small scaly bulbs in a crown at the root, and numerous white flowers three-quarters of an inch across. It is common in meadows and banks in England, its double form being very handsome; also useful as a border plant in the spring garden or in the rougher parts of the rock garden.

S. GRISEBACHII.—A little gem, with early flowers unfolding slowly from a crimson bud, and very distinct in their crimson-purple colour. It is quite a new plant, from Albania, and at certain stages not unlike a small form of *S. longifolia*, but at other seasons plainly a very different plant. It is without doubt the most remarkable of the red-flowered Rockfoils, and an attractive garden plant withal. It forms rosettes of silvery leaves 2 to 3 inches across, from which issue leafy, glandular, brilliant-coloured stems terminated by a nodding inflorescence of reddish-crimson flowers. No species of the genus is of greater ornament or more worthy of specialisation by the gardener. Quite happy in gritty loam in sunny well-drained spots. Colonies of it in the rock garden are very effective. Easily raised from seeds, which are freely produced in those instances where artificial pollination is resorted to. The plants should be given dry conditions meanwhile. Macedonia.

S. HAAGEI.—Said to be a hybrid of *sancta* and *Ferdinandi Coburgi*, this is unique among golden-flowered Saxifrages, and the most prodigal to bloom of the whole race. Of carpeting habit and the easiest culture, revelling in cool loamy soil with full exposure, it is a plant of indescribable beauty and utility. Flowers in March and April.

S. HYPNOIDES (Mossy Rockfoil).—A very variable plant as regards stem, leaves, and flowers, but usually forms mossy tufts of the freshest green, and no plant is more useful for carpets in winter. For this reason it is suited for the low rocky borders of town and villa gardens, thriving in the rock garden or on level ground, either in half-shady positions or fully exposed. When exposed it forms the fullest tufts, flowering profusely in early summer.

S. JUNIPERIFOLIA (Juniper Rockfoil).—From the Caucasus, and probably the shyest flowering member of the genus. Leaves deep green, spiny tipped, the rosettes arranged in cushion-like tufts, not in mat-like masses, as in *S. sancta*, with which it is often confused. The flowers are yellow and are produced in clusters on inch-high stems in spring. The plant grows well in strong cool loam, and may be increased by division or by cuttings.

S. LINGULATA.—A charming plant from the Maritime Alps, characterised by very long linear leaves with a conspicuously encrusted margin. The flowers are of the purest white, and are produced in elegant sprays in May and June. *S. l. lantoscana* is a form of this species, easily distinguished by its short, blunt, spathulate leaves and arching racemes of white flowers, the latter closely arranged on the upper surface of the inflorescence. The twain are most desirable and of the highest ornament. Loamy soil with a third old mortar rubble or pounded bricks suits them well. Division and seed.

S. LONGIFOLIA.—This Pyrenean plant has single rosettes often 6, 7, and 8 inches in diameter. Its greyish leathery leaves are beautifully dotted with white on the margins, and in early summer it pushes up fox-brushlike columns of white flowers from 1 to 2 feet long, the stems covered with short, stiff, gland-tipped hairs. It is perfectly hardy, and may be grown in various ways. In some perpendicular chink of a rock garden, where it can root deeply, it is very striking when the long outer leaves of the rosette spread away from the densely-packed centre. It may also be grown on the face of an old wall by carefully packing a small plant of it into a chink with a little soil. The stiff leaves will, when they roll out, adhere firmly to the wall in the form of a large silver star. *S. longifolia* will thrive on a raised bed or border if surrounded by a few stones to prevent evaporation and injury. Increase is by seeds, which should be sown as soon as ripe. As the species perishes after flowering, it is necessary to raise it from seeds periodically.

Group of Silvery Rockfoils.

S. MAWEANA.—A handsome species of the *cæspitosa* section, and larger than any other in foliage and flowers. The latter, about the size of a shilling, form dense white masses in early summer. After flowering this species forms buds on the stems, which remain dormant till the following spring. Though rare, it is of

easy culture. Similar, but finer, is *S. Wallacei*, which is far more robust, earlier, and freer as regards flowering, but which does not develop buds during summer.

S. MUSCOIDES (Mossy Rockfoil).—A beautiful little plant, forming a dense bright green cushion-like tuft. There are several forms of it, one of the best being *atro-purpurea*, which produces a dense mass of deep red-purple blossoms on stalks a few inches high. Other forms bear yellowish or rosy flowers, the best being richly coloured flowers, the last of rich velvety crimson, the most brilliant of them all. None are more desirable or effective when freely massed. *Bathoniensis* and *decipiens grandiflora* are bolder growing, plus a little coarseness also, and attain 9 inches or more high. They have large rich red coloured flowers. All are easily grown in cool, moist soil, and may be increased at will, every rosette making a plant if pricked out in moist sandy soil in a cold frame.

Saxifraga Wallacei.

S. Rhei, with large bright pink flowers, borne very freely on long stalks, and Guildford Seedling, a new kind, with large crimson-purple flowers of fine effect. The varieties *pygmæa* and *crocea* are pretty, also the allied kinds, *S. exarata*, *S. pedemontana*, *S. aromatica*, and a few others; they grow in almost any soil.

S. MOSSY HYBRIDS.—These are great garden gains, the brilliant patches of colour they afford in the nature of a revelation. They have descended chiefly probably from *Muscoides atro-purpurea*, *Rhei*, Guildford Seedling, and the bolder-growing *decipiens*, and are welcome additions to a great race. *Bakeri*, *Clibrani*, *Fergusoni*, an early-flowering form of Guildford Seedling, and *sanguinea superba*, are of dwarf habit of growth and

S. OPPOSITIFOLIA.—It is impossible to speak too highly of the beauties of this bright little mountain-plant, in colour and in habit so distinct from others of its family. The moment the snow melts it glows into solid sheets of purplish-rose colour. Of the several varieties, that known as *splendens* has flowers of far greater brilliancy, though slightly smaller and less abundant than those of the parent; in bud especially the colour is almost carmine and most beautiful. This variety was found many years ago on the mountains of Scotland. *S. o. major* has flowers twice the size of the type, clear rose, inclining to cherry, and has less of a purple tinge. In *S. o. pyrenaica* the shoots are much stronger and the flowers larger than in other forms. A fine form

is *S. o. p. maxima*, with lovely light rose blossoms as large as a shilling; while *S. o. alba* has white flowers, in pleasing contrast to other varieties. Perhaps the best form of all is a new seedling, W. A. Clark, with abundant rosy flowers of a very bright shade. *S. Rudolphiana* has a more spreading habit of growth, and its rosy-purple flowers are sometimes borne singly and sometimes (though rarely) in pairs. It is allied to *S. biflora* and *S. Kochii*, the last with rosy-purple flowers in twos and fours at the tips of the shoots. The foliage of *S. retusa* is firm and compact, with small flowers borne in clusters at the tips of erect stalks; their narrow petals are usually a pale rose colour, sometimes brighter. It blooms rather later than the forms of *S. oppositifolia*. *S. Wulfeniana* is closely allied to *S. retusa*. *S. oppositifolia* and its varieties succeed in deep, open, rich, loamy soil, and are finest in a fissure or on a ledge of the rock garden, where the roots can ramble backwards or down to any depth. For the soil, a rich light loam mixed with fragments of limestone or grit, small fragments of any rock, and a little river sand will do. These plants must have sunshine, for though they will grow in the shade, they will not flower freely.

S. PELTATA.—The shield-like leaves of *S. peltata* make it unique among Saxifrages, and on this account some have classed it apart under the name *Peltiphyllum*. From a thick fleshy root-stock rise stout erect leaf-stalks to a height of 3 or 4 feet, where they are terminated by target-like leaves 18 inches or more in diameter. The white or pale pink flowers appear in spring, a little before the leaves, on stalks 1 to 2 feet high, and in loose clusters 3 to 6 inches in diameter. It is found beside streamlets and also in woods throughout the Sierra Nevada of California, and is best in deep, moist, loamy soil. Division or seeds.

S. PURPURASCENS.—A brilliant member of the *Megasea* section. The stem is 12 to 16 inches high, and the flowers are produced in pendent masses of red and purple. The ample foliage takes on charming autumn tints in purple and crimson. Succeeds best in a moist peaty soil in a rather sheltered spot. Himalayas.

S. ROCHELIANA (Rochel's Rockfoil).—A compact and dwarf kind, forming dense mounds of silvery rosettes of tongue-shaped leaves with white margins and distinct dots. In spring appear large white flowers on sturdy little stems. There is no more exquisite plant for the rock garden, pans, and for small rocky or elevated borders. Any free, moist loam suits it, and in London it thrives on borders exposed to the full sun. Austria.

S. SANCTA.—A beautiful species, forming a dense mass of deep green foliage, studded in early spring with bright yellow blossoms on short stems. It grows freely in any position in the rock garden, but needs moisture and free exposure to flower well.

S. SARMENTOSA (Mother of Thousands).—A well-known plant, with roundish leaves and numbers of slender runners spreading Strawberry fashion. It grows freely in the dry air of a sitting-room, and may often be seen in cottage windows, but is most at home running wild in the cool greenhouse or conservatory, where it

Saxifraga sarmentosa.

flowers during summer. In mild parts of England it lives in the open air, and may be used with Ferns and other creeping plants. There is a pretty but rather delicate form in which the leaves are finely variegated with yellow and crimson. China.

S. STRACHEYI.—A strong-growing plant of the Megasea section, with leaves nearly as broad as long. Its flowers, produced on broad branching panicles, are of a light pink with a shade of lilac. It is hardier than its closest ally, *S. ciliata*, blooms in March, and should be sheltered against bleak winds. It is suited for borders and rock gardens.

S. TENELLA.—A handsome plant, forming tufts of delicate fine-leaved branches, 4 or 5 inches high, which root as they grow. The flowers, which appear in summer, are numerous, whitish-yellow, and arranged in a loose panicle. Similar in growth are *S. aspera*, *S. bryoides*, *S. sedoides*, *S. Seguieri*, *S. stelleriana*, and *S. tricuspidata*, all suitable for clothing the bare parts of the rock garden and slopes, but require

moist soil and cool positions. Division in spring or the end of summer.

S. UMBROSA (London Pride).—This is abundant on the mountains round Killarney, and has long been grown in our gardens. It is naturalised in several parts of England, and grows freely in dwarf herbage or in rocky parts of woods.

Irish Rockfoil.

There are other good kinds, but less important than the foregoing, such as *S. mutata*, *S. florulenta*, very difficult to grow, the London Pride-like *S. Geum*, the native *S. Hirculus*, and the small grey tufted *S. aspera*.

HYBRID ROCKFOILS.—A fine series of hybrid Megaseas is that due to Mr T. Smith, of Newry, resulting from crosses between *cordifolia* × *purpurascens*, and with the good qualities of both parents. The plants are all robust, although varying much in colour of flower and in stature. *Hybrida splendens* is one of the finest in the group, but the following are all good :—

Brilliant. — Leaves large, richly tinted in autumn and winter ; flowers purple ; calyces and pedicels crimson ; fine. *Campana.* — Very neat dwarf crowded foliage ; scape 1½ feet with bell-shaped head of rosy-lilac flowers. *Corrugata.*—Dwarf habit ; large rough leaves ; flowers pink. *Distinction.*—Dwarf crowded habit, with enormous head of pale pink flowers. *Nana.*—A miniature of *hybrida splendens*. *Progress.*—A free-growing plant, with tall scapes of rosy purple, bell-shaped blossoms, which are 1¼ inch across ; extra fine. *Sturdy.* — Compact habit, with short stout scape of rose-coloured flowers.

SCABIOSA (*Scabious*).—Annual, biennial, and perennial plants, some of much beauty.

S. ATRO-PURPUREA (Sweet S.).—The normal colour is said to be deep crimson, but under cultivation all shades of crimson, purplish-yellow, and white may be seen. Many varieties have double flowers and are preferred by some growers, but I think the single varieties are best. By sowing the seed in the open towards the end of March and thinning out as required, the plants will bloom well towards the latter end of summer. To get earlier bloom, those sown the previous autumn may be transplanted in early spring to their flowering quarters ; the succession will then be continued from early summer until late autumn. S.W. Europe.

S. CAUCASICA.—The finest perennial in my garden, it flowers from early summer to late autumn. It forms dense tufts, which yield large quantities of blue flower-heads, each usually from 3 to 4 inches in diameter, on long foot-stalks, and useful for cutting, as they last a long time. There is a white variety, and others such as *atro-cærulea*, which is very dark ; *fimbriata*, with the petals finely fringed ; and *perfecta*, with semi-double flowers. *S. amœna* comes very near *caucasica*, but is more vigorous and with flowers of rosy-lilac colour. Caucasus. Division and seed.

S. COLUMBARIA (var. *rosea*).—Saidto be a form of our native Scabious, but in habit totally distinct. Its flowers are large and of a very pleasing soft pink. It grows about 2 feet in height, and may be increased by seeds, cuttings or division of the roots.

S. GRAMINIFOLIA (Grass-leaved S.).—A graceful Scabious from 1½ to 2 feet high, with pale blue flowers and silvery-white leaves ; it is very useful for the rock

garden. S. Europe. June to October. Division and seed.

S. PTEROCEPHALA (Wing-headed S.) is a very dwarf-tufted hardy perennial, with greyish-green foliage, and rarely exceeding 4 or 6 inches in height even when in flower; flower-heads pale purple in summer.

S. WEBBIANA.—A useful species for the rock garden or border, forming neat little masses of hoary leaves, which are attractive, especially when the plant is grown in poor soil. Its creamy-yellow flowers, borne on long stalks, are pretty from July to August. Division.

SCHISTOSTEGA (*Iridescent Moss*).—This Moss (*S. pennata*) is so small that it would hardly be noticed by the naked eye but for the iridescent gleams of beautiful colour which it displays in suitable positions. Some of the stones and sods on which it grows look as if sown with a mixture of gold and the material that forms the wings of green humming-birds. It was supposed to require a particular kind of rock, but its wonderful coruscations have lately been seen to spread over sods of turf and masses of peat, as well as over chips of rock brought from its native place. Messrs Backhouse have it in perfection in the open air, in a quiet deep gorge of rocks, where it obtains sufficient moisture without being washed by rains.

SCHIZANDRA.—A small group of summer-leafing climbing shrubs allied to Magnolia, and mostly from the Far East, but with one kind from North America. The best known is *S. chinensis*, with twining stems of 10 to 25 feet, bearing simple glossy leaves and pale rosy flowers during early summer, half an inch across and fragrant. These are followed by dense clusters of showy scarlet berries, which ripen in August and hang far into the winter. China and Japan. The plant needs a sheltered place if it is to do well, but with protection in winter is hardy over at least the south of Britain. A rich sandy loam, moist yet well-drained, and partial shade during the hottest hours of the day, are the best conditions. Though mostly grown against a trellis or sunny wall, in sheltered places it is quite at home roaming among shrubs and low trees, as in its own land. Increase by cuttings of the ripened shoots, root-cuttings, layers, and suckers when these can be had. Syn., *Maximowiczia sinensis*.

SCHIZANTHUS (*Fringe-flower*).—Pretty annuals of elegant growth, which bear in summer many showy and curiously-shaped blossoms. There are in cultivation a few species, and these have yielded numerous varieties. The hardy kinds are *S. pinnatus*, 1½ to 3 feet high, its rosy-purple and yellow blossoms copiously spotted. Its chief varieties are — *papilionaceus* (purple spotted), *Priesti* (white), *atro-purpureus* (deep purple with dark eye), and Tom Thumb (a dwarf compact variety). *S. porrigens* is similar to *S. pinnatus*, but has larger flowers. The half-hardy kinds are *S. retusus* (deep rose and orange flowers with crimson tips), *Grahami* (lilac and orange), and *Hookeri* (pale rose and yellow). These are also beautiful, and worthy of being grown well. One of the best for growing in pots is *Wisetonensis*, a compact pyramidal form of *S. retusus*, with large flowers blending in white, pink, and yellow. This should be grown cool, just like a greenhouse Cineraria. Garaway's is a good strain of large-flowered forms, very useful for cutting or decoration. If treated as half-hardy annuals, the seed should be sown in heat in spring, but if treated as biennials, the seed should be sown in August, the plants preserved in the greenhouse till May, and then planted out in rich, sandy loam. Chile.

SCHIZOCODON (*Japanese Moon-wort*).—*S. soldanelloides* was introduced by Captain Torrens, who in 1891 found the plants growing beside sulphur springs in the mountains of Japan, and, after carrying them hundreds of miles, succeeded at last in bringing home three or four living plants. The flowers of the Schizocodon are like those of a large Soldanella, prettily fringed, deep rose in the centre, passing into blush or almost white towards the edges. It requires much the same treatment as Shortia, thriving in well-drained sandy loam and peat, in cool and moist but not wet or shady places. Partial shade allows a finer development of the rich crimson leaf-tints in autumn. Captain Torrens says:—"The plant I found in an overhanging bank surrounded by moss and moisture. Since I brought it home I have kept it in a pot with peat and sand. It is a hardy plant, and I have had it out two winters in a cold frame, and it seems to have stood the climate well."

SCHIZOPETALON.—*S. Walkeri* is a

curious cruciferous half-hardy annual from Chile, about 1 foot high, with slender stems, and numerous white almond-scented elegantly fringed blossoms. If sown in April or May, in light, warm, rich soil in the open border, it flowers in July and August, and may also be sown in pots, but the balll of earth must not be broken, as the plant will not bear transplanting.

SCHIZOPHRAGMA (*Climbing Hydrangea*). — *S. hydrangeoides* is a Japanese climbing shrub allied to the Hydrangea, with tall slender stems that send out roots which will fix it to a wall. Its wood is soft, resembling that of the slower-growing Ivies, and it annually gives off fresh sets of roots along its branches by means of which it clings to rocks, stone, stucco, bricks, and even wooden palings. Its leaves are much less in size than those of the climbing Hydrangea, sharply toothed at the edges, and of a lovely shade of green, which contrasts prettily with the reddish tinted young wood. It is deciduous, of free growth, and flowers freely in sunny positions. The sterile flowers, though similar in effect to those of the Hydrangea, are readily distinguished, being composed of a single bract, whereas the Hydrangea flower is made up of four. I know one case where a plant has grown in a sunny corner of the house near French windows, up the sides of which there is lattice-work, and so charmed were the owners with the tender foliage, feathering the coign of the window, that they made more lattice-work in front of the window so that the creeper could extend and form a natural sunshade before the glass. In a few years a plant had grown 11 feet high and as much in width.

SCHIZOSTYLIS (*Kaffir Lily*).—*S. coccinea* is a handsome bulbous plant from Kaffraria, with the habit of a Gladiolus, from 2 to 3 feet high. The flowers appear late in the autumn on a one-sided spike opening from below upward, of a bright crimson colour, resembling in form those of *Tritonia aurea*, and should be well grown wherever cut flowers are desired in winter. It is hardy, and in a mild autumn will flower out of doors, but should have some protection. A good row planted close to a wall or fence, with some temporary protection against severe frosts, will give many spikes for cutting. *S. coccinea* loves moisture, both in the air and in the soil. "When residing close to the sea in Dorset," says "West Dorset," "I could grow this winter Flag splendidly in a shallow trench in good rich soil. In summer it was deluged with water when the weather was dry, and in autumn a splendid crop of strong spikes of bloom resulted. In North Hants, with a hot, dry, light soil, I never could grow it well, although I always kept it watered at the roots during summer." Increase by seeds, or division in spring.

S. Mrs Heggarty.—This is a form of the old Kaffir Lily. Its flowers are large, freely borne upon stems 2 feet in length, and of an attractive pink colour. Planted at the foot of south walls in a free soil a few roots have been quite a success.

SCIADOPITYS VERTICILLATA (*Umbrella Pine*).—A stately evergreen tree attaining a height of upwards of 100 feet in its own land, and forming a dense pyramid of verdure of remarkable beauty. It is not clearly allied to any other known tree, and seems, like the Salisburia, to be a last trace of some long-past geological period. Though fully hardy with us, it grows slowly and only thrives in moist open soils rich in humus. Where Rhododendrons do well the Sciadopitys also flourishes, but it fails completely on wet heavy soils and on those that are poor and dry, and until established is much tried by cold winds. The finest trees in the country are not yet much over 20 feet high, and are to be found in Cornwall, where the rainfall is heavy and the atmosphere moist; all the same, there are good ones at Kew, Bagshot, and many other places. The leaves vary in length from 2 to 4 inches, coming as whorled clusters of twenty or thirty together, radiating like the rays of an umbrella, each whorl continuing for three years and separated from its successor by the length of the annual woody growth. The branches are also whorled, making this one of the most characteristic of conifers. The cones are 2 to 3 inches long, borne at the tips of the shoots, and composed of thin imbricated scales. They yield fertile seeds in this country, ripening in their second season. The young leaves are usually a pale yellow green, but when in full luxuriance the mature foliage is of a rich deep tone.

SCILLA.—Beautiful spring flowers

and bulbs, mostly natives of the colder parts of Europe or the Alps, and some precious for our gardens. These all flower in spring, and are of the simplest culture. In early autumn, when the plants are at rest, they should be planted a few inches deep in any good garden soil, not too heavy. They need not be disturbed for years, except, perhaps, for a slight yearly top-dressing of manure. Some kinds, especially the many-coloured varieties of the Spanish Scilla, are suited for planting by the sides of woodland walks, or on the margins of shrubberies, and in the wild garden. Offsets may be taken from established clumps during summer. Raising Scillas from seed is interesting, though slow. In some seasons seed is plentiful, and many improvements in size and colour have been obtained in this way. We retain the name Scilla as far prettier than the English one of "Squill." The following are best kinds :—

S. AMŒNA (Star Hyacinth). — This flowers in early spring, opening about three weeks after *S. sibirica*. It is less ornamental than any other kind, for its flowers have none of the grace of *S. campanulata* and the varieties of *S. nutans*, nor the dwarfness and brilliancy of *S. sibirica*. The leaves, usually about half an inch across, are about 1 foot high, and easily injured by cold or wind, so that a sheltered position is necessary. It is not exactly suited for the choice rock garden, though worth a place on sunny banks in semi-wild spots. Tyrol. Seeds or separation of the bulbs.

S. BIFOLIA.—In the dawn of spring this bears masses of dark blue flowers, and forms handsome tufts. The flowers are four to six on a spike, and the plant varies from 6 to 10 inches high, according to the soil and warmth and shelter of the position. It thrives in almost any position in ordinary garden soil, the lighter the better, but must be left to seed and increase as it likes. S. and C. Europe. Of all Scillas, *S. bifolia* is the most variable, and most of the garden forms are better than the type. *S. Præcox* is a stronger grower, the flowers larger, more abundant, and earlier. In *purpureo-cærulea* the ovary and base of the segments are rosy-purple, gradually merging into blue, which becomes intense towards the tips, harmonising with the black and gold-banded anthers. It is a free flowerer, and the blooms individually are nearly as large as a shilling. In the Taurian variety, *S. b. taurica*, the flowers are much larger than in *S. bifolia*, and, with the exception of the white base, greatly resemble those of some of the forms of *Chiondoxa Luciliæ*. They vary from ten to twenty on each scape, and the leaves are larger and broader than those of *S. bifolia*. The white form of *S. b. taurica* is very scarce. *S. b. alba*, a pretty ivory-white form, has flowers not larger than those of the type. *S. b. rosea* is a new garden form with deep rosy flowers, and *carnea* a paler variation.

S. NUTANS (Wood Hyacinth).—Though this abounds in many woods, its good varieties are uncommon. Among the

Scilla festalis (Wood Hyacinth).

best are—the white variety, *alba ;* the rose-coloured variety, *rosea ;* the pale blue variety, *cærulea ;* and a pleasing "French-white" variety. There are now selected large-flowered strains of all these colour varieties, mostly distinguished as *major* or *grandiflora*. All these kinds should be planted here and there in wood or copse and along the margins of shrubberies. Syn., *S. nutans*.

S. HISPANICA (Spanish Scilla).—One of the finest of early summer flowers, and one of the most robust of the family. It is easily known by its strong pyramidal raceme of pendent, short-stalked, large, bell-shaped flowers, usually of a clear light blue. A variety *major* is larger in all its parts, and is a noble flower ; still larger is a new form, Excelsior, with large deep

blue bells, and Skyblue, with flowers of a paler shade. *S. hispanica* is never better seen than in the fringes of shrubberies. The shelter so received protects its large leaves from strong winds. It deserves to be naturalised by wood-walks and in the grassy parts of the pleasure ground. S. Europe.

S. ITALICA (Italian S.).—This kind, with its pale blue flowers, intensely blue stamens, and delicious odour, is one of the best of the Scillas. It grows from 5 to 10 inches high, the flowers small and spreading in short conical racemes, which open in May. It is hardy, thriving best in warm soils. Divide and replant in fresh positions every three or four years, not oftener. It is easily naturalised in meadow grass. S. Europe.

S. SIBIRICA (Siberian S.).—A noble spring flower essential in every garden where spring flowers are cared for. It grows freely in ordinary soils, and is hardy. Asia Minor.

OTHER CULTIVATED KINDS.—Amongst Scillas not generally found in gardens, but hardy in dry situations, may be named *S. peruviana*, a large species, with beautiful broad leaves, Yucca-like and very distinct; it stands well in sheltered nooks, or even in the open border in southern districts. The numerous fine blue flowers are in a superb umbel-like pyramid, which lengthens during the flowering period. Tufts of the Peruvian Scilla should be taken up every three or four years, when it is at rest. Divide the bulbs and replant immediately. The variety *Clusi* also succeeds.

SCIRPUS (*Bulrush*). — Sedge-like plants fringing lakes and ponds. There are numerous native species that might be readily transplanted, and the best of these are *S. triqueter*, *S. sylvaticus*, and *S. lacustris*. These are from 3 to 8 feet high, and effective on the margins of lakes or streams with other tall plants. A distinct kind is *S. Eriophorum* from N. America, a handsome grassy plant with drooping heads of a cinnamon-red colour.

SCOLOPENDRIUM (*Hart's-tongue*). —*S. vulgare* is one of the best known of hardy evergreen British Ferns, and broken into numberless interesting forms and varieties, some being very beautiful. It prefers shade, and though sometimes met with on dry stone and brick walls, its favourite place is by the side of a stream in a shady ravine. Fine specimens have been seen between the joints of brickwork at the tops of old wells, the fronds developing fine proportions. A suitable soil consists of equal portions of fibrous peat and loam, good sharp sand being added, together with broken oyster-shells or limestone.

SCUTELLARIA (*Skullcap*).—Hardy perennials, of which several are in cultivation, but few are good garden plants. These few are handsome flowers for the border, and their dwarf neat growth is also suited to the rock garden in an open sunny situation in any soil. *S. baicalensis*, from Siberia, is the finest of all the species. It is an excellent alpine perennial, forming a hardy woody root-stock, is 9 inches high, and produces an abundance of rich, velvety, dark blue flowers, finer in colour than those of *S. japonica*, though this is a handsome plant. The alpine Skullcap (*S. alpina*) is a spreading plant with all the vigour of the coarsest weeds of its natural order, but neat in habit and ornamental in flower. Pyrenees. Division or seed.

SEDUM (*Stonecrop*). — Rock and alpine plants which thrive in any soil. They may be grown in the ordinary border, in the rock garden, on walls, and on ruins, and indeed in any place where the roots find foothold. Like the Saxifrages, they differ in habit, some, like *S. acre*, being humble and creeping, while others, like *S. spectabile*, are stately plants for the border. A great many are in cultivation, and we mention the best of the hardy kinds.

S. ACRE (Wall Pepper).—This little plant, with its small, thick, bright green leaves and its brilliant yellow flowers, grows abundantly on walls, thatch, rocks, and sandy places. It is beautiful in the winter garden; its golden tips peep out in November, and only vanish with the heat of May.

S. AIZOON.—Is 1 foot or more in height, with erect stems crowned by dense clusters of yellow flowers. It is an old garden plant for the border or rock garden, and requires open positions and a light soil. Siberia and Japan.

S. EWERSI.—A neat hardy plant, about 6 inches high, with broad silvery leaves and clusters of purplish flowers. A good edging plant. Siberia.

S. HISPANICUM.—A minute grey plant, forming spreading tufts of short stems densely clothed with thick leaves and inconspicuous flowers. Other Sedums nearly allied to it are *S. dasyphyllum*, *S. glanduliferum*, *S. farinosum*, and *S. brevifolium*; but though hardy on walls and rocks, they have not the vigour of many Stonecrops.

S. LYDIUM.—A pretty little plant from Asia Minor, scarcely an inch high. For edgings or slopes bordering footpaths it is useful. It roots on the surface with great rapidity. Very small pieces put in the soil in spring soon form a mass of rich evergreen verdure, scarcely an inch in height and level as turf.

S. MAXIMUM.—Like *S. Telephium*, is variable, there being no fewer than a dozen named varieties. Of these by far the most important is *hæmatodes*, or *atro-purpureum*, so called from the vivid purple of the stems and large fleshy leaves. It grows from 1 to 2 feet high, and though loved by slugs. Its leaves in autumn often assume a rosy-coral hue. The plant is hardy, and merits a place in the rock garden, especially where its branches may fall without touching the earth and its graceful habit may be well seen. Grow in strong loam and mortar rubble in fully exposed positions. An excellent plant for vases in summer. Japan. Division.

S. SPECTABILE.—This is distinct and beautiful, erect, and with broad glaucous leaves. Its rosy-purple flowers appear in dense broad corymbs about the middle of August, and remain in perfection for two months or more. The glaucous foliage,

The Japanese Stonecrop (*Sedum spectabile*).

the flowers are not showy, it is a stately plant for poor stony soil.

S. PULCHELLUM (Purple American Stonecrop).—Has purplish flowers, arranged in several spreading and recurved branchlets, bird's-foot fashion, with numerous spreading stems. It is abundant in N. America. It is also at home in the rock garden, growing in any soil, and flowering in summer.

S. RUPESTRE (Rock Stonecrop).—A densely tufted native plant, with rather loose corymbs of yellow flowers. There are several similar kinds, such as the glaucous-leaved *S. pruinatum*; *S. Fosterianum*, with light green leaves; and *S. reflexum*, of which there are several varieties.

S. SIEBOLDI.—A beautiful Stonecrop even before the flowers come, is a pleasant relief to any high-coloured plant that may be near it. It withstands extreme cold, heat, or wet, and, unlike most plants, will grow and flower to perfection in shaded places, thriving in any soil. Varieties with darker flowers have recently come to light, the best being *atro-purpureum*, with flowers of rich dark crimson-purple. Japan.

S. STOLONIFERUM (Purple Stonecrop).—The best of the Sedums with large flat leaves is the Purple Stonecrop. It flowers late in summer, and often through the autumn makes a bright display, and is suited for edgings, the margins of mixed borders, and for the rock garden. Syns., *S. dentatum* and *S. spurium*. Caucasus.

S. TELEPHIUM.—This is the most variable Stonecrop. No fewer than twenty

forms have received names either as subspecies or as varieties, but our native form is as showy as any. It is 1 to 2 feet high, the stout erect stems furnished with fleshy leaves, and in late summer and autumn bearing dense broad clusters of bright rosy-purple, but sometimes white flowers. Frequent in hedgerows and thickets.

SELAGINELLA.—A few hardy kinds of this large family of Lycopods are valuable for carpeting the fernery or clothing shady spots in the rock garden. These kinds are *S. denticulata*, *S. helvetica*, and *S. rupestris*, small trailing plants of a delicate green, mossy growth. *S. Kraussiana*, generally known in plant-houses as *S. denticulata*, is also hardy in many places, and in Ireland grows and thrives better than any of the kinds mentioned. All these plants require a well-drained peaty soil, shade, and a sheltered position.

Sedum kamtschaticum.

SEMPERVIVUM (*Houseleek*).—Succulent rock and alpine plants, of which the common Houseleek (*S. tectorum*), often seen on old roofs and walls, is the most familiar. There is a strong family likeness throughout, and they form rosette-like tufts of fleshy leaves, which chiefly differ in the colour of the foliage, some deep red, others pale green. The flowers of most of them are of a reddish tinge, and several are yellow. All the hardy kinds will grow well in dry sandy parts of the rock garden where few other alpines thrive, or on old walls, ruins, and the like, merely requiring to be placed in chinks with a little soil. Most of them thrive on any border, if the soil be not too stiff and damp, but they prefer a dry, elevated position and full exposure to the sun. Nearly all are easily increased by their abundant offsets. Europe and W. Asia.

S. ARACHNOIDEUM (Cobweb Houseleek). One of the most singular of alpine plants, with tiny rosettes of fleshy leaves covered at the top with a thick white down, which intertwines itself all over the leaves like a spider's web. Invaluable for sunny wall gardens and the hottest and driest of rock garden chinks, where their true character is revealed. They are also most effective in colonies, and should be freely planted in vertical or horizontal positions between rocks, where few plants can exist.

S. ARENARIUM (Sand Houseleek).—Grown in dense patches, this plant has a lovely effect. It is much smaller than its ally *S. globiferum*, and, unlike the latter species, the leaves of the rosettes are not incurved. The flowers are small, yellow, pretty, and the leaves usually rich crimson. *S. Heufelli*, a similar species, has in autumn almost chocolate-crimson foliage, the flowers being yellow. Other species of similar character are *S. hirtum*, *S. Neilreichi*, and *S. soboliferum*, which is often confused with *S. globiferum*.

S. CALCAREUM (Glaucous Houseleek).—No finer Houseleek has ever been introduced than this, often misnamed *S. californicum*. It is as easily grown and as hardy

as the common Houseleek, and thrives in any soil. Planted singly, its rosettes are sometimes nearly 5 inches across, the leaves glaucous, and tipped at the points with chocolate. It is deservedly popular for edgings in the flower garden, and also admirable for the rock garden. Other cultivated kinds are *S. glaucum*, *S. Camollei*, *S. Lamottei*, *S. Verloti*, and *S. juratense*, and these are all desirable for a full collection.

S. FIMBRIATUM (Fringed Houseleek).—One of the most profusely blooming kinds, the dark rose-coloured flowers appearing in summer on stems 6 to 10 inches high. The leaves, which are in small rosettes, are smooth on both sides, strongly fringed, and terminate in a long point, being marked at the end with a large purple spot. *S. Funcki*, *S. Powelli*, *S. barbatulum*, *S. atlanticum*, and *S. piliferum* are similar.

S. GLOBIFERUM (Hen-and-Chicken Houseleek).—This grows in firm dense tufts, its little round offsets being so abundantly thrown off that they are pushed clear above the tufts, and lie on the surface in small brownish-green balls. The small leaves of the young rosettes all turn inward, and appear of a purplish colour, but in the full-grown rosettes are light green, the tips of the under side being of a decided chocolate-brown for nearly one-third of their length; the flowers are small and yellow.

S. MONTANUM (Mountain Houseleek).—A dark green kind, smaller than the common Houseleek, the leaves forming neat rosettes, from which spring dull rosy flowers in summer. It is suitable for edgings or for the rock garden, grows in any soil, and is easily propagated. Alps. *S. assimile* and *S. flagelliforme* are similar.

S. TECTORUM (Common Houseleek).—Though a native of rocky places in the great mountain ranges of Europe and Asia, the common Houseleek, having been cultivated from time immemorial on housetops and on old walls, is well known to everybody. It may be used in flower gardening, but it would be better to select some of the rarer species for edgings and other purposes.

S. TRISTE.—Distinct from other Houseleeks, as its rosettes of leaves are of a deep dull red, which makes it a handsome plant. It is about the size of *S. tectorum*, and in light warm soil is quite as vigorous and rapid a grower. Its singular colour makes it a valuable contrast to other plants, but at present it is not much known. *S. rubicundum*, of deep crimson hue, is also worth a place.

SENECIO (*Groundsel*).—An immense genus of over a thousand described species, most of them worthless weeds, but with a few plants of value. They are exceedingly variable in habit, including annuals and herbaceous perennials, shrubby plants and low trees, climbers, and even succulents, but there is much sameness in the flowers, which are yellow or orange in most kinds, though sometimes purple or white. They are among the most easily grown of plants, and readily increased from seeds, cuttings, division, or root-cuttings. The silvery and down-covered kinds do best in dry corners and fully exposed, while others, such as the large-leaved, tall-growing herbs, thrive in rich moist soil at the waterside, with some shelter from wind. The following are the best of the few cultivated kinds :—

S. ADONIDIFOLIUS.—A neat hardy perennial, common in France and distinct from other wild kinds of Europe. The rigidly erect stems measure 2 to 3 feet, with glossy and finely-cut foliage and bright orange-yellow flowers in July. As it spreads from the root, its true place is the rougher part of the garden, where it is well worth a place.

S. ARTEMISIÆFOLIUS. — A perennial with broad clusters of showy yellow flowers on stems of 12 to 18 inches high. The deep green leaves are finely cut and give a feathery appearance. *S. abrotanifolius* has similar foliage, but its orange-yellow flowers are larger and fewer. These are hardy European plants of the easiest culture in the rock garden or border.

S. CLIVORUM.—From China, with large heart-shaped leaves of shining green, a foot or more across, and tall much-branched heads of orange-yellow flowers with a brown centre, 2 to 3 inches wide, in July and August. A bold waterside plant of easy culture, too coarse for the border, and not particular as to soil.

S. DORONICUM.—One of the showiest and most useful of the group, 1 foot to 3 feet high, with stout stalks of large bright yellow flowers in early summer. It is hardy anywhere and in any soil. Seed or division. Central Europe.

S. ELEGANS (Purple Jacobæa).—This beautiful half-hardy annual has long been a favourite in gardens. It has a dwarf form (*nana*) about a foot high, and there are varieties with double flowers which are showy and desirable, ranging in colour from white to deep crimson, and lasting a long while. The plant does best in rich sandy loam and planted in bold masses, which flower from July to October, according to the time of sowing. Cape of Good Hope.

S. GREYI.—A curious hardy shrub of 3 to 4 feet from New Zealand, with oval silvery leaves and loose heads of yellow flowers.

S. JAPONICUS.—One of the finest of the

large kinds, standing about 5 feet high with us, its leaves nearly a foot across and divided into about nine divisions. The flower-stems are slightly branched, and bear flowers 3 inches across of a rich orange colour, in autumn. This is a hardy, moisture-loving plant, and should be grown in rich and moderately stiff loamy soil, and beside a lake or pond where it will never lack moisture. Japan—where it is said to reach a height of 15 feet.

S. MACROPHYLLUS is a stout leafy perennial, 6 feet high when full-grown, the glossy green leaves and much-branched heads of small yellow flowers of stately effect when grown boldly on the lawn or in the wild garden.

S. PALUDOSUS.—A handsome water-plant for the wild garden, found in our own fen district and in wet places throughout Europe. It stands 4 to 6 feet high, with long narrow leaves which are coarsely toothed and white with cottony down while young. The bright yellow flowers appear in July and August. Division.

S. PULCHER.—One of the handsomest, 2 to 3 feet high, bearing in late autumn rosy-purple flowers 2 to 3 inches across. The plant is hardy, but its beauty is often marred by frost and bad weather. It grows best in deep moist loam, and where some protection can be given from autumn frosts. With us it rarely ripens seed, but is easily increased in spring by cuttings of the roots, an inch long, pricked into pans of light sandy soil and placed on a shelf in the greenhouse. Buenos Ayres.

S. SARACENICUS.—In moist places in the west of England this plant grows wild, reaching a height of 4 or 5 feet. It is useful for the margins of ponds or streams, where it spreads fast, and, associated with the Willow Herb, gives a beautiful effect. Similar to this is *S. Dorio*, also well suited to the wild garden.

S. TANGUTICUS.—A new kind from China, with stout spiry stems of 6 or 7 feet, and bold leaves cut into irregular lobes. The yellow flowers are small, appearing in autumn, when the general effect of the plant is bold and pleasing, growing apart on the lawn or in the wild garden. *S. Veitchianus* and *S. Wilsoni* are new Chinese species of bold habit well suited to waterside gardening or woodland.

SEQUOIA.—Enormous cone-bearing evergreen trees of the Pacific coast of N. America, just hardy enough to be the object of numerous experiments in our country, far from successful either from an artistic or most other points of view. In some of the books it is said that these great trees are readily propagated by cuttings inserted under glass in autumn, but we would beg everybody never to plant any tree of the kind except from seed.

S. GIGANTEA (Big Tree).—A colossal tree in its own country, inhabiting mostly, in scattered groups or groves, the Californian Mountains for a distance of over 250 miles in length, existing trees being over 300 feet high. No tree ever introduced has excited so much interest or been the subject of so much costly experiment in this country. It succeeds well in various districts, but is badly treated as "set out" in the "specimen" way. The right way is to plant it forest fashion—say at 5 feet apart—with Larch between, to be cut out in due time, the big tree to be thinned as the years went. Syn., *Wellingtonia gigantea*.

S. SEMPERVIRENS (Red Wood).—A noble evergreen tree, thriving somewhat better in our country than the Big Tree, but, planted as it usually is by itself, it is often torn about by sleet storms in our climate, which is so very different from that of its native country. Still it grows rapidly in good free soils, and is worth trying grown in a wood or grove so that the trees may shelter each other. Sheltering groves or woods of it would give good timber in quick time, as it is a very rapid grower. Coast range of W. America. Syn., *Taxodium sempervirens*.

SERAPIAS. — Terrestrial Orchids from S. Europe, worthy of a place among hardy Orchids, as the flowers are singular and in some kinds beautiful, as *S. cordigera*, with large showy flowers, chiefly of a blood-red colour; *S. lingua*, with peculiar brownish-purple flowers; and *S. longipetala*, with large rosy-red flowers. These are all 9 to 12 inches high, and their flowers are densely arranged on broad erect stems. The plants succeed best in a soil composed of two parts of peat, one of loam, and one of sand and leaf-mould. The position should be partially shaded and well sheltered.

SESELI (*Gum Seseli*).—*S. gummiferum* is a handsome plant, 1½ to 3 feet high, with elegantly-divided leaves of a glaucous or almost silvery tone. Though a biennial, it is so distinct that some may like to grow it. The best position for it is on dry and sunny banks, or in raised beds or borders. *S. glauca* is also cultivated for its graceful white foliage and curious heads of flowers.

SHAMROCK.—This little plant is often grown in gardens through its associations, but as several totally different plants do duty for the

Shamrock, the following note by Mr Hemsley of Kew may be of interest :—

"The plant commonly sold at Covent Garden as Shamrock is *Trifolium minus*, a small yellow-flowered Clover, and the same plant is now in use as such in Ireland in the counties of Antrim, Down, Meath, Fermanagh, Dublin, Wicklow, Carlow, Westmeath, Wexford, Limerick, Waterford, Cork, and Kerry. This plant, therefore, so far as present usage is concerned, has the greatest claim to the name of true Shamrock. Black Medick (*Medicago lupulina*), a very similar plant, is sometimes substituted for the Clover, from which it may be distinguished by the leaflets being rounded, not notched, at the top, and by the tiny pod being twisted. The common red Clover (*Trifolium pratense*), the white Clover (*T. repens*), and the Wood Sorrel are other plants more or less known and used as Shamrock. Occasionally one or the other of the plants named produces leaves having four leaflets, then called the four-leaved Shamrock."

SHEPHERDIA.—A small group of American shrubs, grown for their bright silvery foliage, the flowers being inconspicuous, though one kind bears an excellent fruit. All are hardy and of easy culture, resisting cold and drought even on dry banks where few other plants can exist. *S. canadensis* is excellent in this way, reaching a height of 6 to 8 feet, with oval green leaves, reddish underneath, and small red or yellow berries. *S. argentea*, the Buffalo Berry, is a taller shrub of nearly 20 feet, with thorny stems, silvery leaves, and juicy red or yellow berries, prized for jellies and preserves by the Western colonists. *S. rotundifolius* is an evergreen kind with silvery leaves, from Utah.

SHORTIA.—*S. galacifolia* is an interesting and beautiful plant, first discovered over a hundred years ago by Michaux in the mountains of N. Carolina, and rediscovered in 1877. It was found growing with *Galax aphylla*, and forms runners like that plant, and is propagated by this means. The plant is of tufted habit, the flowers reminding one of those of a Soldanella, but large, with cut edges to the segments, like a frill, and pure white, passing to rose as they get older. There is now a pretty variety in which the flowers are of a delicate pink from the very first, and plants with semi-double flowers also occur. There is much beauty in the leaves, which are of rather oval shape, deep green, tinged with brownish - crimson, changing in winter to quite a crimson, when it forms a bright bit of colour in the rock garden or border. A correspondent, writing in *The Garden*, says: "The cultural directions given in catalogues to keep the plant in a shady situation and grow it in Sphagnum and peat deprive us of its chief charm—*i.e.*, the handsome-coloured leaves during the winter and spring months. Instead of choosing a shady spot I selected a fully exposed one, and here two plants have been for over a year, one in peat and the other in sandy loam. Both are vigorous." It succeeds well in various soils, as described, and is hardy. It is also a delightful plant in a pot, as the flowers on their crimson stems are pretty, and one gets also the prettily tinted leaves. North America. A new species, *S. uniflora*, has recently come to us from Japan, but is still rare. While not unlike the American plant, this differs from it in having larger flowers, broader and more prostrate leaves, and shorter flower-stems, some of the flowers hardly rising above the leaves, which turn a fine crimson from August to the following spring. The plant thrives in a mixture of peat and loam, in full sun, and is fully hardy.

Shortia uniflora.

SIBTHORPIA (*Moneywort*). — *S. europæa* is a little native creeper with slender stems and tiny round leaves. In summer it forms a dense carpet on moist soil, and should always be grown in the bog garden or moist ferneries. A native plant in the southern counties. Shady banks and ditches suit it.

SIDALCEA (*Greek Mallow*). — A group of graceful herbs from North West America, with showy white, pink, or purple flowers in long erect spikes like a miniature Hollyhock. Those in cultivation are perennials, but do best if frequently renewed from seed sown as soon as ripe, the seedlings being wintered in a frame, and planted out in spring. In sheltered places and in warm soils these plants will pass the winter in the open, but they prove a little tender in many places, and the autumn-sown plants bloom earlier and more finely than those raised in heat early in the year. The Sidalceas are fast becoming better known, and, being profuse in flower, excellent for cutting, and of the easiest culture. The best kinds are *S. candida*, with pretty white flowers an inch across, on tall stems of 2 to 3 feet—a showy plant when freely grouped. Rosy Gem is identical with this, save in its fine rosy colour. *S. malvæflora* is of stout erect growth and fine habit, with deep rosy-purple flowers nearly 2 inches across when fully expanded. A form of this, *S. Listeri*, is charming, with spikes of soft rosy flowers beautifully fringed at the edges. Others are *atro-purpurea*, with deep purple spikes, and *Murrayana*, a dwarf plant, in which the flowers are a deep rose-crimson. *S. oregana* has smaller rosy flowers; *S. incarnata*, slender and rigid red spikes; while in *S. spicata* they are rosy-purple.

SILENE (*Catchfly*).—A large family containing few showy plants, but with some of great beauty. S. and C. Europe is the home of the Silene, though a few extend west to America, or east to Siberia, and a sprinkling is found on the southern shores of the Mediterranean and in Asia Minor. The following dwarf kinds are suitable chiefly for the rock garden :—

S. ACAULIS (Cushion Pink).—A dwarf alpine herb tufted into light green masses like a wide-spreading Moss, but quite firm. In summer it becomes a mass of pink, rose, or crimson flowers barely peeping above the leaves. Spots on the mountains of Scotland, Northern Ireland, North Wales, and the Lake District of England are sheeted over with its firm flat tufts, often several feet across. In gardens it is as beautiful as when wild, growing freely in almost any soil, but not shaded, or in pots and pans. A new species of Silene, *S. Palestinæ*, from Asia Minor, comes near our Cushion Pink, with heads of deep rosy flowers.

S. ALPESTRIS (Alpine Catchfly).—A very dwarf alpine plant, hardy, and beautiful when covered with white flowers in May. It succeeds in any soil, and is 4 to 6 inches high. It should be used freely in every rock garden. *S. a. grandiflora* is an invaluable double-flowered variety. Division or seed.

S. ARMERIA is a showy annual kind with leafy stems of 12 to 18 inches high, bluish-green foliage, and dense clustered heads of white, pink, or crimson flowers from July to September. When established on old walls and in rough places it will sow itself freely with fine effect, some of the prettiest wild pictures of S. Europe having arisen in this way. It is already naturalised in parts of Britain, and is just the plant for a wild garden, in light and well drained soils.

S. ELIZABETHÆ.—A richly beautiful and scarce alpine plant, the flowers looking more like those of some handsome but tiny Clarkia than of the Silenes commonly grown. They are very large, bright rose with the claws or bases of the petals white. One to seven flowers are borne on stems 3 to 4 inches high. It is considered difficult to grow, but strong plants are as easy to manage as the Cushion Pink. It is rare in a wild state, but occurs in the Tyrol and Italy, amid shattered fragments of rock, and sometimes in flaky rocks without soil. This beautiful "Catchfly" is not often seen even among the choicer alpines, while colonies of it in the rock garden are rare. The moraine should not prove uncongenial to the plant itself, seeing that in nature it is not infrequent among limestone rubble on sunny slopes. Few species of the genus are more distinct and attractive, the plant bearing handsome Clarkia-like flowers, on stems 6 to 8 inches high, and of a rich, rosy-red colour. It flowers late in June and through July. Seeds.—E. H. J.

S. HOOKERI.—A dwarf and rare Californian, with downy leaves of two different shaped, trailing stems, and large deeply-notched rose-coloured flowers 2 inches across. The plant thrives in deep sandy soil and in open and well-drained positions in the alpine garden, nestled among the larger rocks which reflect the sun and protect from cold winds. Seeds.

S. MARITIMA.—The handsome double variety (*S. maritima fl.-pl.*) of this British plant is noteworthy, not only for its white flowers like those of a small double Pink, but for its dense spreading sea-green carpet of leaves, pleasing on the margins of raised borders, or hanging over the faces of stones in the rougher parts of the rock garden. The flowers appear in June, and those of the double variety rarely rise more than a couple of inches above the leaves, which form a tuft about 2 inches deep.

S. PENDULA.—There are many garden forms of this fine biennial. There are double-flowered forms of all these variations, which last longer in flower than the single kinds, and also many named selections, such as Triumph, Snow King, Elfride, Venus, and Empress of India. These *compacta* varieties are mostly used for spring work, and form compact rounded tufts about 4 inches high. To obtain the finest plants for spring-flowering, seed should be sown in the reserve garden in autumn, and afterwards transplanted. Flowers from May to August. Italy and Sicily.

S. PENNSYLVANICA.—The wild Pink of America is a dwarf plant, forming dense patches, with clusters of six or eight purplish-rose flowers, about 1 inch across, and standing 4 to 7 inches high from April to June. It thrives in light sandy soil, and is not fastidious, coming from sandy, gravelly places. It will often flower the first year from seed, but mostly not till the second season.

S. PUMILIO.—Like our Cushion Pink in its dwarf, firm tufts of shining green leaves, though these are a little more fleshy and not so spiny. The rose-coloured flowers are also much larger, handsomer, and taller, though scarcely more than 1 inch above the flat mass of leaves, so that the whole plant is seldom more than 3 inches high. It thrives in rock gardens as well as the Cushion Pink, and should be planted in deep sandy loam on a well-drained and exposed spot, moist in summer, facing the south. Place a few stones round the neck of the young plant to keep it firm and to hold moisture. Tyrol.

S. LACINIATA PURPUSI.—No member of the race can vie with this in brilliant colouring; 6 to 8 inches high, with nearly lance-shaped and woolly leaves, the dazzling cardinal scarlet flowers, 1½ inches across, surpass all else by reason of their intensity. It is valuable, too, for its late summer and autumn flowering. Grows well in rich sandy loam, and prefers a high, dry, and sunny position.

S. SCHAFTA.—A spreading hardy plant from the Caucasus forming very neat tufts, 4 to 6 inches high, covered with large purplish-rose flowers. As it flowers late in summer, it should not be used where early bloom is sought, but is useful for edgings. Seed or division.

S. VIRGINICA (Fire Pink).—A brilliant perennial, with flowers bright scarlet, 2 inches across. The somewhat slender stalks lie flat on the soil, and the flowers are borne a few inches above it. The Fire Pink succeeds in a well-drained rock garden. It comes from open woods in America, from New York southwards, flowering from June to August. The best plants are obtained from seed, as it does not bear division well. *S. rupestris*, a sparkling-looking white species, little more than 3 inches high when in bloom, is rather like a dwarf *S. alpestris*, but better worthy of a place. It is, however, a little particular as to soil, thriving best in rocky *débris*, and refusing to grow where there is much lime. *S. stellata* is a graceful plant from American woods, with starry white flowers deeply fringed at the edges, on stems of 18 inches high. *S. Zawadski*, a neat Austrian species with white flowers in spring.

SILPHIUM (*Rosin Plant*).—Stout N. American Sunflower-like perennials, of stately habit, and among those which suggested the idea of the "wild garden" to me. There they are at home among the most vigorous growers, as they thrive and flower freely on the worst clay soils. *S. laciniatum* is a vigorous perennial with a stout stem, often 8 feet in height, and fine yellow-coloured flowers, on drooping heads, which have the peculiarity of facing the east. *S. perfoliatum* (Cup Plant) is 4 to 8 feet in height, and has broad yellow leaves 6 to 15 inches long and flower-heads about 2 inches across. *S. terebinthinaceum* (Prairie Dock) has stems 4 to 10 feet high, panicled at the summit, and bearing many small heads of light yellow flowers. A variety (*pinnatifidum*) has leaves deeply cut or pinnatifid. *S. terebinthinaceum* has a strong turpentine odour. Other species are *S. trifoliatum*, *S. integrifolium*, *S. ternatum*, and *S. albiflorum*, in which the flowers are creamy-white and nearly 4 inches across. If planted in numbers in bold masses, these plants produce a stately effect in the wild garden, especially in autumn, but to do well they need an open and sunny space.

SILYBUM (*Milk Thistle*).—*S. marianum* is a vigorous naturalised plant, 5 feet or more in height. Its large leaves are cut and undulated, and tipped and margined with scattered spines; they are bright glistening green, with broad white veins. The Milk Thistle is easily raised from seed, and thrives in almost any well-drained soil. A few plants raised in the garden and planted out in rough and somewhat bare places or banks will soon establish themselves.

SINOFRANCHETIA CHINENSIS.—A recently-introduced summer-leafing climbing plant from China. It is said

to be hardy, but its value for our gardens has yet to be proved.

S. CHENINSIS.—In addition to the mealy white shoots, this good climber produces endless numbers of graceful racemes of lavender blue fruits a foot or more in length, each fruit ¾ inch long. These are pretty in autumn when drooping through the roofs of pergolas.

SISYRINCHIUM (*Satin-flower*). — Iridaceous plants from N.W. America, of which only one species is worth growing, namely *S. grandiflorum*, a beautiful perennial with narrow, grass-like leaves that blooms in early spring. The flowers, borne on slender stems 6 to 12 inches high, are bell-shaped and drooping, more like a Campanula than an Iris, and rich purple in colour, which becomes a transparent white in the variety *album*. They are charming for the rock garden, thriving in a light peaty soil. Division.

SKIMMIA.—The ones best worth cultivating are *S. japonica* and *S. Fortunei*. There has been much confusion between these plants, that universally known in gardens as *S. japonica* not being Japanese at all, but a native of China, its proper name being *Skimmia Fortunei*. Unlike *S. Fortunei*, the true Japanese plant is dicœcious, and both sexes have received specific names, *S. fragrans* being simply the male of the true *S. japonica*. The Skimmias thrive as well in strong clay as in poor sandy soil and peat, doing best in partial shade and never growing fast at any time. *S. japonica* is one of the very best town evergreens we possess. Other forms of it are *S. Foremani*, *S. Rogersi*, *S. oblata ovata*, *S. o. Veitchi*, and *S. fragrantissima*. To produce well-berried plants, put the two sexes near to each other.

SMILACINA (*Wild Spikenard*). — Graceful but not showy hardy perennials. They are easily managed plants, and the N. American species will be found useful for mixed herbaceous borders, having rich green foliage and white feathery flower-heads in May and June.

Skimmia fragrans.

S. OLERACEA.—Native of temperate Sikkim, and has been grown for many years at Kew. It is difficult to manage unless left alone, being a slow grower, slow to increase, and a shy seeder. It is the most striking species in cultivation, and in the south at any rate is hardy, succeeding in rich peaty soil with a northern exposure.

S. RACEMOSA and S. STELLATA.—Natives of N. America, both white-flowered and hardy. They may be cultivated with ease in the mixed flower border, where in May and June they are very attractive.

SMILAX (*Green Briar*).—Distinct and handsome climbing shrubs, nearly all evergreen. They are most suitable for walls, but several may be grown over large tree roots or may be trained over tree trunks in sheltered spots. In some cases it is not the cold winter that kills, but rather the lack of summer heat that prevents ripening of the wood. Some plants can be divided, or pieces may be taken off which readily make plants, and this is the surest way of increase for hardy kinds, the best of which are as follows :—

S. ASPERA.—A well-marked species, with angular and usually prickly stems, reaching a height of 5 to 10 feet. In colour the leaves are dark green, with flecks of white on the upper surface, and the flowers whitish and fragrant. Variety *mauritanica* has angular stems of a considerable length and bearing few prickles ; they are also rare on the leaves. It is a handsome plant from the Mediterranean and the Canaries.

S. BONA-NOX (Bristly Green Briar).—The root-stocks have large tubers ; the stems are slightly angled, the branches often four-angled, the leaves green and shining on both sides, and their margins fringed with needle-like prickles. N. America.

S. CANTAB.—For many years this has grown in the Cambridge Botanic Garden. It is evergreen, the strong rounded shoots reaching a height of 12 feet or more, armed with strong, straight green prickles ; the branches slender, and usually spineless. The male flowers are fragrant, in clusters of eight to twelve. This plant comes near *S. rotundifolia*, but the leaves differ in shape.

S. GLAUCA. — This plant has angular stems of about 3 feet, armed with rather stout numerous or scattered prickles, or may sometimes be without any. The leaves are partially persistent, glaucous beneath and sometimes above. N. America.

S. HISPIDA.—Quite a distinct plant, the stems of which are usually thickly hispid with slender straight prickles. The leaves are thin and green on both surfaces, the margins usually toothed. N. America.

S. LAURIFOLIA.—A high climbing species, the stems round, armed with strong straight prickles, the branches angled, mostly unarmed. It is evergreen, and easily recognised by its leathery, bright green, three-nerved leaves, elliptic in shape.

S. ROTUNDIFOLIA (Green Briar).—A high climbing species with large, thin, and nearly round leaves. The stems are angular and the prickles stout, scattered, and sometimes a little curved. This is a handsome strong-growing species, which does well in the Trinity College Botanic Gardens, Dublin. N. America.

S. TAMNOIDES.—This grows well in the Bamboo Garden at Kew, and shows well how such a plant may be used to ramble over tree stumps to make a mass of picturesque vegetation. It has the free-growing habit of *S. aspera*, and bears numerous black berries.—R. IRWIN LYNCH.

SOLANUM.—The vast Solanum or Potato family embraces plants of great beauty from all over the world, many being remarkable for their ample foliage finely spined and cut. Those kinds hardy enough to be grown against walls in the open are best in rather poor dry soil, for if grown too freely the shoots perish during winter. Seed is easily obtainable, and if raised early in heat the plants are ready for putting out by the end of May or early in June. The following are among the best, but only the hardy kinds have any garden value for our gardens.

S. CRISPUM (Potato Tree).—Reaches 15 or 20 feet as a bush in the open, and exceeds this against a wall. It is one of the hardiest kinds, resisting as far north as the Trent on warm soils, though dying to the ground in a hard winter. The leaves vary in size, being much larger towards the base than at the tips of the shoots, and waved or loosely crisped around the edges. The flowers are a pretty bluish colour, fragrant in summer.

S. JASMINOIDES (Jasmine Nightshade).—A charming summer-leafing climber, and the most beautiful of the family, hardy anywhere in the south of Britain, where its wreaths of starry white flowers are freely borne upon a wall or house-front, even in a north aspect. Grown out of doors and in a strong light, the flowers are more or less shaded with greyish-blue or purple, and there is a charming pale bluish variety in which the colour seems fixed. The flowers are pure white if grown in partial shade, or in a north house. The shoots should be well cut in after frost is over in spring. Increase from side-shoots taken with a heel.

S. WENDLANDI.—The noblest of Solanums, and one of the handsomest climbing plants, flowering profusely through a long season, and at its best about August. It has been tried in the open air with some success in warm gardens south of the Thames and in sheltered places along our southern coasts. The fleshy stems climb freely, bearing sparse soft spines. Leaves variable in size and shape, often cut into deep lobes. Flowers in large drooping clusters of a soft

lilac-blue colour and 2 inches or more across; those shown in the engraving form only a small part of the perfect cluster, which often measures a foot across. The leaves fall in winter, when the plant should be kept fairly dry at the root and the shoots well cut back before again starting into growth. Increase by cuttings of tender side-shoots, taken with a heel from plants started early under glass. Costa Rica.

Solanum Wendlandi.

SOLDANELLA (*Moon-wort*).—Diminutive alpine flowers, at one time considered difficult to grow, but not really so if grown in peaty or sandy and moist soil, with coarse vigorous plants kept at a distance. *S. alpina* is one of the most interesting of the plants growing near the snow-line on the great mountain-chains of Europe. The plants thrive best in moist districts, and in dry ones evaporation may be prevented by covering the ground near them with cocoa-fibre

mixed with sand. The most suitable position is a level spot in the rock garden near the eye. The plant is increased by division, though being often starved and delicate from confinement in small worm-defiled pots, exposed to daily vicissitudes, it is rarely strong enough to be pulled to pieces. *S. montana* is allied to *S. alpina*, but with larger leaves and purer blue flowers. It comes from the same regions and needs the same treatment. It is readily increased by division, but like the last, is often too weak for this. *S. pusilla* has kidney-shaped leaves, and a corolla less deeply fringed. The very small *S. minima*, with its minute round leaves and its single flower, fringed for a portion of its length only, is rare. These plants thrive under the same conditions as the others, but, being much smaller, require more care in planting, viz., in a mixture of peat and good loam with plenty of sharp sand, and associated with minute alpine plants. They require plenty of water in summer.

SOLIDAGO (*Golden Rod*).—These N. American plants exterminate valuable plants, and give a coarse aspect to the border. They are also gross feeders and impoverish the soil. They hold their own, however, in a copse, or a rough open shrubbery among the coarsest vegetation, and the silky seeds of some kinds persist, with a pretty effect, far into the winter. There are nearly 100 kinds, of which the best are *S. Buckleyi*, a dwarf species with bluish-green foliage and orange flowers; *cæsia*, another dwarf kind of slender growth with pale yellow flowers; *Gattingeri*, of good habit, with abundant plume-like sprays; *latifolia*, a dwarf early kind with broad rounded leaves; *odora*, of slender growth, with fragrant deep yellow flowers, quite one of the best; *rigida*, of dwarf erect growth, with downy leaves, fine flowers, and roots which do not run; *serotina lepida* (*gigantea*), often 6 feet high, with dark stems and large heads of flower; *Shortii*, the best of the tall kinds, with spreading, finely-arched heads, very useful for cutting; *spectabilis*, of medium height, with fragrant, deep yellow flowers, and not too strong at the root; and *Virgaurea nana*, the neatest of all, with compact heads only a foot high.

SOLLYA (*Blue-bell Creeper*).—Beautiful evergreen climbing shrubs from Australia, mostly grown under glass but hardy in the open air in the warmest parts of the south-west of England, Wales, and Ireland. Trained around the pillars of a sunny verandah, or against a warm wall, the dark wiry stems extend freely, bearing narrow deep green leaves and small drooping bell-flowers of a clear blue, continued through a long season. The best known kind is *S. heterophylla*, and of this there is a distinct narrow-leaved form, *angustifolia*, which twines less freely. Swan River. Increase by seeds and by cuttings of half-ripe shoots, which root with some difficulty.

SOPHORA (*New Zealand Laburnum*).—*S. tetraptera* is a large tree in its own country, and makes a charming wall-plant here. The variety *grandiflora* has larger flowers and is more robust, while the variety *microphylla* is remarkable for finely-divided leaves and smaller flowers. In sheltered gardens against walls in the southern and the mild parts all may be grown, though they may need extra protection in severe winters. Another species in cultivation is *S. chilensis*, which also needs protection. Syn., *Edwardsia*.

S. JAPONICA (Pagoda Tree).—One of the finest of flowering trees, elegant in foliage, and in September covered with clusters of

Sophora japonica.

white bloom. It is one of the largest of trees, and when old has a wide-spreading head with huge limbs. Its long pinnate leaves retain their deep green colour until autumn. Where space is limited it may be kept in bounds by hard pruning. There are several varieties—a drooping kind, which is one of the best of all pendulous trees, and a variegated-leaved kind, which is not satisfactory, as the variegation is seldom good.

S. SECUNDIFLORA.—A low dense tree or leafy shrub, with ornamental foliage composed of neat rounded leaflets with a glossy surface, and strongly fragrant violet-blue flowers borne in a dense spike. These are followed by soft silvery pods containing bright red seeds. The plant is not easy to obtain, but is hardy with protection in our more favoured districts. Texas and New Mexico.

S. VICIIFOLIA.—A native of China, it has been grown in this country for the last twelve or fifteen years, and has already proved one of the best hardy summer-flowering shrubs. As a bush, it grows at least 5 or 6 feet high, but will attain quite double that height against a wall. In good loamy soil there does not appear to be any reason to doubt that it will grow in almost any part of the country, for there is no question as to its hardiness. Cuttings root fairly readily, and flower earlier than seedlings. It transplants badly, so should be planted young. Mountains of China.

SPARAXIS. — Charming bulbous plants from the Cape of Good Hope, the many varieties coming chiefly from *S. grandiflora* and *S. tricolor*. They are about 1 foot high, of slender growth, and bear large showy flowers which vary from white to bright scarlet and deep crimson, usually having dark centres. Sparaxis are valuable for early-summer flowers, and should be treated like Ixias. There are a great many named varieties offered by bulb-growers, one of the most showy and popular being *Fire King*. *S. pulcherrima* (the Wand-flower) is so distinct that its claim to be a Sparaxis has often been disputed. Its tall and graceful flower-stems rise to a height of 5 or 6 feet, and wave in the wind, but, though slender, are so tough and wiry that they are never injured like the much stronger-looking stems of the Pampas Grass. It has a great objection to removal, and, if necessary, this should be done as soon as the flowers begin to fade. It succeeds in dry as well as damp positions, if it has a rich friable soil, or if when beginning to grow it is well watered. Syn., *Dierama*.

Sparaxis pulcherrima (Wand-flower).

SPARTINA POLYSTACHYA (*Reed Grass*).—Though hating most variegations, I have been forced to admire this tall grass. It is very graceful, with yellowish variegation and of tall habit. It is a free grower and gives a fine group of foliage in the mixed border.

SPARTIUM (*Spanish Broom*). — *S. junceum* is a S. European shrub, blooming in July, August, and September, when shrubberies are usually flowerless. It is thin-growing, 8 or 10 feet high, and its Rush-like shoots have so few leaves as to appear leafless. It bears erect clusters of fragrant bright yellow flowers shaped like Pea-blossoms, is perfectly hardy, and useful for dry, poor soils, where, like the common Broom, it does well, coming freely from seed scattered broadcast where we wish it to grow.

SPECULARIA (*Venus's Looking-glass*).—These are similar to Campanulas, and often placed with them, though distinct. *S. Speculum*, with numerous open bell-like bright violet-purple flowers, is one of the showiest of our annuals. Besides the large-flowered form called *grandiflora*, sometimes purple and sometimes white, there is a double-flowered kind which comes true from seed, also a dwarf compact form with violet-blue flowers. *S. pentagonia* is another favourite, its

flowers larger but less abundant than those just described, purple in colour, with a deep blue centre. Both these kinds are hardy and generally scatter seed, which comes up year after year, without trouble, except to keep the seedlings within bounds.

SPHENOGYNE.—*S. speciosa* is a beautiful half-hardy Mexican annual Composite of slender, much-branched growth, about 1 foot high. The flowers, produced from July to September, are yellow with a brownish centre encircled by a conspicuous black ring, the centre being orange in the variety *aurea*. *S. speciosa* will succeed if sown in the open in April.

SPIGELIA (*Worm Grass*). — *S. Marilandica* is a beautiful native of N. America, distinct from all other hardy plants. It forms a tuft of slender stems about 1 foot high, each bearing long tubular flowers in July, which are deep red outside and yellow inside. In its own land it grows in sheltered situations, the roots going deep down into rich vegetable mould. Partial shade in summer and abundance of moisture are essential. Best in the lower parts of the rock garden.

SPIRÆA.—Beautiful shrubby or perennial plants of easy culture, distinct habit, and often of fine form. They grow well in rich soil in borders, and are also excellent for the margins of water. The shrubby kinds are of the highest value, and are described in a sub-section. The best of the herbaceous or Meadow Sweet section are as follows :—

S. ARUNCUS (Goat's-beard).—A vigorous perennial, 3 to 5 feet high, beautiful in foliage and habit as well as in flower. Its flowers are freely produced in summer in large gracefully-drooping plumes. It is valuable for grouping with other fine-foliaged herbaceous plants. It thrives in ordinary soil, but succeeds best in a deep moist loam. Europe, Asia, and America. Division.

S. ASTILBOIDES. — A moisture-loving plant of unusual merit, happiest on the banks of a stream or pond. It is quite distinct, the inflorescence much branched, and the flowers of a creamy white closely packed on the stems.

S. CAMTSCHATICA.—A gigantic Meadow Sweet, growing from 6 to 10 feet high, with huge palmate leaves and large fleecy bunches of white flowers crowning the tall stems. Its place is in rich bottoms or by water in deep soil.

S. FILIPENDULA (Dropwort).—A British species, 1 to 2 feet high, with loose clusters of yellowish-white flowers, often tipped with red. When the flower-stems are pinched off it forms an effective edging plant, its Fern-like foliage being distinct. The double variety (*S. Filipendula fl.-pl.*) is useful in the mixed border. Division.

Spiræa Aruncus.

S. LOBATA (Queen of the Prairie).—One of the best of the hardy Spiræas, 18 to 36 inches high, with deep rosy carmine flowers in large terminal cymes. It thrives in sandy loam on the mixed border, on the margins of shrubberies, or grouped with the finer perennials.

S. PALMATA.—A beautiful herbaceous plant from Japan. It has handsome palmate foliage, and in late summer broad clusters of rosy-crimson blossoms. When well-grown it is a fine plant for large rock gardens, in borders, or on the margin of shrubberies, and being strong enough to take care of itself, it may be naturalised.

S. ULMARIA.—This native Meadow Sweet deserves a place, if only for the sake of variety, in the mixed border, on the margins of shrubberies.

S. BLUMEI.—A rare and pretty shrub of about 4 feet, gracefully arching, with blunt deeply-notched leaves and abundant white flowers in June. Japan.

S. BULLATA.—A neat shrub for the rock garden, only 12 to 18 inches high, with erect and downy branches, rounded and wrinkled leaves, and deep pink flowers in July and August. Japan. Syn., *S. crispifolia*.

S. CANA.—A dense shrub of 1 to 2 feet, with grey down-covered leaves which give the plant a hoary appearance. The tiny white flowers are borne upon arching

sprays throughout the summer, and quite freely even on small plants.

S. CANESCENS.—A graceful shrub from the Himalayas, reaching a height of many feet at maturity, with hairy stems, small bluntly-oval leaves, and white (or rarely pale pink) Hawthorn-scented flowers in crowded clusters upon the slender sprays. The plant needs room to spread its whip-like stems, and is best in a sheltered place.

toniensis, but its variety *rotundiflora* is distinct and pretty.

S. DECUMBENS.—A mountain shrub from the Tyrol, seldom exceeding 6 inches in height, and excellent in the rock garden, where it spreads by means of underground stems. The clusters of white flowers, about 2 inches across, come freely in June against a setting of pretty toothed leaves.

S. DISCOLOR (Spray Bush).—A lovely shrub 8 to 10 feet high. We should seek

Spiræa discolor.

S. CANTONIENSIS (Canton S.).—A slender bush, about a yard high, bearing many small clusters of white flowers. There is also a beautiful double variety in which the flowers last longer. The Plum-leaved Spiræa (*S. prunifolia*) is represented in gardens by the double variety (*fl.-pl.*), a charming shrub, with flowers like tiny snow-white rosettes, in early summer wreathing every twig. *S. media* (better known as *S. confusa*) resembles *S. can-*

to give full expression to its singular beauty by careful grouping, taking care to save it from the horrible jumble that nurserymen give us when they plant a "shrubbery." Given an open position, it forms a large bush of good form laden during summer with spray-like panicles of small whitish flowers. Syn., *S. ariæfolia*.

S. DOUGLASI and S. NOBLEANA.—Are so similar in growth and flower that they may be conveniently coupled, though as

they bear their clusters of deep red flowers at different times it is well to have both. N. America. *S. Douglasi* succeeds in every part of the British Isles; *S. Nobleana*, from California, is less hardy, and flowers earlier. An allied plant of garden origin is *S. Billardii*, raised from *S. Douglasi* crossed with *salicifolia*. It is a pretty shrub of 6 feet, with oblong leaves, and narrow crowded spikes of bright pink flowers, 5 to 8 inches long, from July into September. *S. pachystachys*, another garden hybrid (from *corymbosa* and *Douglasi*) bears broader leaves and pale pink flowers.

S. HYPERICIFOLIA.—From Asia Minor, the type of a small group, all good in growth and flower. The tall slender stems arch gracefully, and under good conditions reach a height of 8 feet, wreathed in the flowering season with clusters of small white flowers.

Spiræa japonica.

S. JAPONICA (Rosy Bush M.).—Easily recognised by its slender stems 3 or 4 feet high, surmounted by broad flat clusters of deep pink flowers. It is a variable species with several other names, such as *S. callosa* and *S. Fortunei*. There are also many distinct forms in cultivation, and of these the best are *alba*, a pretty compact shrub with white flowers; *Bumalda*, of the same dwarf habit but with deep rosy flowers; *Bumalda Anthony Waterer*, a good plant richer in colour and approaching the fine form *rubra* from Japan, in which the flowers are intense crimson-purple and a shade larger. The plants called *atropurpurea* and *coccinea* by some hardly differ from this. Other varieties are *splendens*, with flowers of a pale peach colour; *glabrata*, of more rigid habit, with bright pink flowers; and *Frœbeli*, an early-flowering form with wine-red flowers passing to deep crimson. *S. Bumalda ruberrima* is a cross between *Bumalda* and *bullata*, dwarfer than its near parent, with larger flowers of deeper colour; *S. Margaritæ* is a cross between *S. japonica* and its variety *superba*, and is a handsome plant with graceful wand-like shoots and large bright pink flowers. *S. Foxii*, another hybrid of dwarf habit, is less good. *S. bella*, from the Himalayas, comes near *S. japonica*, but is dwarfer and denser. All these kinds flower freely through the summer, and often till late in autumn.

S. LINDLEYANA (Plume S.).—A noble shrub, sometimes 10 feet high, its graceful foliage divided, and delicate green, the flower clusters large, white, and plume-like, being at their best in August. It thrives in warm deep soil, and loves the chalk. In cool soils it does not do so well, seeming to spread more at the root, but is always beautiful in foliage and habit. Himalayas. *S. Aitchisoni* from Afghanistan also comes very near this, differing little save in its larger flowers, ruddy bark, and darker green leaves cut into smaller leaflets.

S. SALICIFOLIA.—A plant covering an immense area in Europe, Asia, and N. America, and even naturalised in parts of Britain. It reaches a height of 3 to 5 feet, with long serrate leaves and rosy flowers in July and August, their precise character differing in the many forms in cultivation. The best of these are *grandiflora*, a shrub of dwarf habit with large pale pink flowers; *lanceolata* (or *alba*) with white flowers; and *latifolia* with larger white or rose-tinted flowers.

S. THUNBERGI (Thunberg's M.).—A dense bush, with small bright green leaves, and in early spring a profusion of tiny white blossoms. It is hardy, and especially suitable for planting in a bold rock garden or on a raised bank among tree-stems. Few shrubs are so fine in autumn, its small leaves changing to brilliant crimson.

S. TOMENTOSA.—A little shrub of about 4 feet, with down-covered branches, oblong leaves grey or woolly with down on the under side, and white, pink, or purplish

flowers in dense spikes. N. America. A pretty plant, one of the best in its autumn flowers, and with roots not much inclined to roam. Especially good in damp ground and overhanging water.

In a genus like Spiræa, numbering many reputed species, and these burdened with endless names and synonyms, it is perplexing to single out the choice few required for the garden. The fact is, we have too many Spiræas and too great a similarity among kinds flowering about the same time. No collection need number more than a dozen kinds, and good grouping of these in a garden would produce better effect than the dotting about of many sorts. My dozen would be the following :—*S. Lindleyana, discolor, Douglasi, Van Houttei, prunifolia fl.-pl., japonica superba, arguta, canescens* var. *flagellaris, cantoniensis, bella, Thunbergi,* and *japonica Bumalda Anthony Waterer.* This selection embraces all the sections, and is sufficient in a general way, but should more be required, a second dozen might include :—*S. decumbens, salicifolia grandiflora, Nobleana, Aitchisoni, japonica coccinea, Billardii, Blumei, japonica ruberrima, tomentosa, confusa, japonica alba,* and *bullata* (*crispifolia*).

The " mixed " shrubbery, where the delicate have to fight the strong, is no place for these elegant plants, which, being surface-rooters, need an open, sunny spot, away from the roots of big trees and shrubs, and where the garden is large enough, I should have isolated groups (bold masses from 10 to 15 feet across) of the taller kinds, such as *Lindleyana, discolor, Douglasi,* and others, and lesser groups of the dwarfer kinds—or these may form masses jutting out from other groups.

Spiræa Lindleyana.

STACHYS (*Woundwort*).—The common *S. lanata,* a woolly-leaved plant used for edging, thrives in any soil. *S. coccinea* is a rather pretty perennial with spikes of red flowers about 1 foot high, and succeeds in a partially-shaded border anywhere in the south. Coming from Mexico, it is not hardy everywhere. *S. grandiflora,* from Asia Minor and Siberia, is a neat downy plant with showy spikes of reddish-purple or rosy flowers from May onwards, sometimes used in the rougher parts of the rock garden. Division.

STACHYURUS PRŒCOX.—Chinese shrubs of some beauty. They are quite hardy and flower very early, which is no great gain in our country.

STAPHYLEA (*Bladder Nut*). — Of the older kinds only *S. colchica* is important, this being a beautiful shrub with pinnate leaves and large terminal clusters of snow-white flowers

in early summer. It is hardy, grows well in any good soil, preferring partial shade, and is commonly forced into flower for the greenhouse in early spring. Increase by suckers, layers, and ripe autumn cuttings rooted under a handlight in sandy soil. S. Caucasus.

STATICE (*Sea Lavender*).—Plants of the Leadwort or Plumbago family, chiefly natives of shore and mountain districts. The larger species require least care when in an open place, while some of them are happy on the rock garden. They are deep-rooting and dislike disturbance, taking some while to regain strength. The best of the larger kinds are *S. Limonium*, of which there are several varieties; *S. latifolia*, the finest of all, with wide-spreading flower-stems and a profusion of small purplish-blue flowers; and *S. tatarica*, a dwarfer species, with distinct red flowers. The smaller species, such as *S. minuta*, *S. minutiflora*, *S. caspia*, *S. eximia*, are good rock plants. Among the half-hardy annuals and biennials the best are: *S. Bonduelli* (yellow), a biennial if protected in winter; *S. spicata*, with spikes of small rosy flowers; *Thouini* (violet), very free flowering; and *sinuata* (purple and white), pretty, and easy to grow.

STEIRONEMA.—Showy perennials of the Primrose order from N. America, nearly allied to Loosestrife, and thriving under the same conditions. Two kinds are useful at the waterside or in the bog garden, *S. ciliata* with leafy stems 1 to 3 feet high, bearing showy pale yellow flowers; and *S. longifolium*, with shorter square stems clothed with narrow shining green leaves, and crowned with heads of bright yellow flowers.

STEPHANANDRA.—Graceful shrubs allied to the Spiræas. They like a good loamy soil, well drained, but still moist, and are some of the most easily propagated of shrubs. Cuttings taken towards the end of the summer before the wood is too hard root readily, they can also be increased by division. When plants of *S. flexuosa* which have been growing long in one spot are removed, quite a little thicket of young plants will spring from the roots left in the ground.

S. FLEXUOSA.—Although the earlier introduced of the two species, this has not long been in cultivation. It grows 3 to 4 feet high with us. It is chiefly for its graceful habit and prettily cut foliage that it is grown, though the soft red of the young shoots in spring and the crimson-purple leaf tints in autumn render it attractive through a long season. Japan and Corea.

S. TANAKÆ.—From *S. flexuosa* this new species is readily distinguished by its coarser, more succulent growth, and by its larger and less-divided leaves. The flowers are small, greenish, and scanty, but the autumn tints of well-grown plants are gorgeous, and the stems themselves take on a bright ruddiness which is retained all winter and makes a pretty feature at that season. Japan.

STERNBERGIA (*Lily-of-the-Field*).—Charming hardy bulbs with flowers of firm texture, better able to withstand bad weather than the Autumn Crocus. One source of failure is moving them at the wrong time, or before growth has fully developed. What they want is thorough ripening in summer and a slight protection, such as dry litter, during the winter. In sandy loams, and fully exposed to the sun, the bulbs will ripen without being lifted, and are best left undisturbed until of flowering size.

S. COLCHICIFLORA.—An old garden plant, having been cultivated by Clusius and Parkinson. Its fragrant, pale yellow flowers come in autumn, perfuming with a Jessamine-scent the fields of the Crimea about the Bosphorus. The leaves are narrow, and come with the fruit in spring. The plants grow in dry exposed tracts of the Caucasus and Crimea, and are hardy in this country. *S. dalmatica* and *S. pulchella* are varieties.

S. FISCHERIANA.—Nearly allied, is hardy, and has the habit of *S. lutea*, from which it differs chiefly in flowering in spring instead of autumn, and by its stalked ovary and capsule. Caucasus.

S. GRÆCA.—Has very narrow leaves and broad perianth segments. Mountains of Greece.

S. LUTEA.—The great autumn Daffodil of Parkinson, it is a very pretty hardy plant, best on warm gravelly soils. The absence of seed on this bulb in a cultivated state is remarkable, seeing how plentiful it is and how freely it flowers in many parts of the country. It is supposed by some writers to be the Lily of Scripture, as it grows abundantly in the vales in Palestine. *S. angustifolia* appears to be a narrow-leaved form, very free-flowering, and more vigorous than *S. lutea*.

S. MACRANTHA.—This is a really handsome species, the leaves blunt and slightly glaucous, about an inch broad when fully developed about midsummer; flowers bright yellow in autumn. Asia Minor.

The rarest of these Sternbergias should have a place in our bulb borders, in gritty or open soil, associated with the rarer Narcissi and choice hardy bulbs. Their effect in masses near the shelter of walls is very fine in autumn.

Sternbergia lutea.

S. SICULA.—A form with narrower leaves and segments than the type, while the Cretan variety has considerably larger flowers.

STIPA (*Feather Grass*).—A large group of grasses, the prettiest of which, *S. pennata*, is hardly to be distinguished from a strong stiff tuft of common grass, except in May and June, when the tuft is surmounted by numerous gracefully arching flower-stems, nearly 2 feet high, and covered with long, twisted, feathery spikes. Division or seed. *S. calamagrostis*, *S. capillata*, and *S. elegantissima* are other good Feather Grasses.

STOKESIA.—*S. cyanea* is a handsome hardy American perennial, 18 to 24 inches high, and of stout free growth, with, in September, large showy blue flowers somewhat similar to those of a China Aster. It grows freely in good warm soils, but from its late season it does not always bloom well. In damp localities place a handlight over the plants at the flowering season, but so arranged as to allow free admission of air. The variety *precox*, which flowers in August, is better. There are also white-flowered varieties of this early form. Failing seed, the only way to increase the Stokesia is by means of root cuttings in winter, and these inserted in pots of sandy soil in the greenhouse soon make useful plants.

STRANVÆSIA.—Chinese evergreen shrubs of some value for gardens. One, *S. undulata*, is quite hardy in my garden, and pretty and graceful. Flowers and fruits early.

STRATIOTES (*Water Soldier*).—*S. aloides* is an interesting native water-plant with a compact vasiform tuft of leaves, from the centre of which arises in summer a spike of unattractive blossoms. In artificial lakes or ponds it will take care of itself, increasing by side-shoots from the base of the leaves.

STRUTHIOPTERIS (*Ostrich Fern*).—Tall, handsome, and vigorous hardy ferns with fronds of two kinds, fertile and sterile, the former being always grouped in the centre of the plant, and the latter forming a cordon round them. Struthiopteris can be increased by division of the creeping underground stems, which run for some distance round well-established plants. They revel in moist loam and leaf-soil, and are of noble appearance in the bolder rock gardens. The kinds suited for gardens are *S. germanica* and *S. pennsylvanica*. The former is one of the best hardy Ferns, with fronds nearly 3 feet long, and well suited for shady slopes, and the margins of streams and pieces of water; it will thrive either in sun or shade. *S. pennsylvanica* closely resembles it, but has narrow fertile fronds. *S. orientalis* I give a place to, but have not yet found what suits it best. Both kinds will grace the garden, and should not be confined to the fernery, and for long have had a cool corner in my garden.

STEWARTIA.—Very handsome hardy shrubs, too rarely seen. The flowers, like a large single Camellia, are beautiful and abundant. They need no care beyond mulching in light soils and during dry seasons, and the removal at intervals of weak and exhausted wood. The most vigorous kind is the Japanese *S. Pseudocamellia*, and it is also the finest in its autumn tints. Though far less vigorous and hardy, the flowers of *S. virginica*, with their contrast of white and crimson, are chastely beautiful, and *S. pentagyna*

is also worth growing. Peat soil is often recommended for these, but is not necessary in gardens of good free loam or alluvial grit, and they will even flower well in some poor soils. A damp place and a moist atmosphere are favourable, as is proved by the fine growth of Stewartias in a wet season, and the fact that they invariably choose stream-sides and wet places in their own land. Increase is difficult and the young plants of slow growth. The lower branches may be layered, or cuttings of the nearly ripe wood, taken with a heel towards the end of summer, and plunged in sandy soil under a bell-glass, will slowly root.

There are five species of Stewartia, but only three are in cultivation.

S. PENTAGYNA (Shell Flower).—The best of the American kinds, reaching a height of 15 to 20 feet, and freely branched from the base upwards. The flowers are fragrant, 3 to 4 inches across, creamy-white with yellow anthers, coming in July and August for about three weeks. In all stages the flowers are beautiful, almost translucent in their purity, tinged with pink upon the outside while in bud, and finely fringed at the edges. The leaves are oval, 5 to 6 inches long, rounded at the base, and finely toothed.

S. PSEUDOCAMELLIA.—A lovely flowering tree from the mountains of Japan, where it reaches a height of 50 feet. The whiteflowers are 2 to 3 inches across, with a tuft of yellow anthers, but they look smaller than this because they remain half-closed like an Abutilon, and never open flat as in other Stewartias. The leaves are thick like those of a Camellia, smooth, bright green with often a reddish tinge, and finely coloured with gold and crimson in the autumn. Syn., *S. japonica.*

S. VIRGINICA. — From the warmer states of N. America, where it grows in swamps, on river banks, and in shady places. At its best it is one of the most beautiful of flowering shrubs, though more sensitive to cold and never so vigorous as the other kinds, rarely exceeding 10 feet in height, and with a looser habit of growth. In this kind the flowers are finest of all but less abundant, measuring 4 inches across, with pure white shell-like petals, sometimes more or less streaked with crimson towards the base, and with red stamens in the centre.

STYLOPHORUM.—*S. diphyllum* is a hardy Poppywort, for the mixed border, bearing large bright yellow flowers in early summer. It is best in partial shade in ordinary soil. N. America.

STYRAX.—Trees and shrubs belonging mostly to warm countries; a few of the hardier kinds succeed fairly well with us in light moist soils. They are summer-leafing, of neat habit, and with abundant flowers like little white bells depending from the under side of the branches. The commonest and best kind is *S. japonicum*, but there are others worth growing though seldom planted. Increase by layers, seed, and cuttings of the soft wood in heat, or of partially ripened shoots under a handlight in the open air, later in summer. Peat is not necessary for these plants where the natural soil is good and free, but heavy soils are against them and they dislike chalk and much lime. The following kinds are in cultivation :—

S. AMERICANUM.—A shrub of 6 to 8 feet, grows in wet places in S. Carolina and Virginia, with nodding white flowers from April into June. *S. californicum*, a shrub of 5 to 8 feet from the mountains of California, bears larger flowers, but is tender with us.

S. GRANDIFOLIUM.—A pretty shrub of 8 to 10 feet high, and the best of the American kinds for this country. To do well it needs a warm and rather dry place, even in our southern gardens, to ripen the shoots in autumn, without which the flowers are scanty and the plant liable to injury. The leaves are 3 to 6 inches long, tapering to a point and hairy on the under side, and freely bears during early summer fragrant white flowers. Mountains of Georgia and Carolina.

S. HEMSLEYANUM.—A summer-leafing small tree, native of China, of recent introduction, and growing well in Cornwall, and worth trying farther north. Best in warm spots and on free soil. Flowers white.

S. JAPONICUM.—The most useful and handsome of the group, hardy almost anywhere in the south, but tender in the Midlands unless grown upon a sheltered wall and protected in sharp weather. The habit of the plant is characteristic, the branches spreading flatly into slender much-branched shoots, covered with ovate glossy leaves and myriads of little white bells dangling clear of the leaves upon their long stems, which spring from the under side of the branches. In Japan it is a tree 40 feet high, but so far we have none approaching this height. Another Japanese kind, *S. serrulatum*, comes very near this, but is less hardy. There is a pretty form of *S. japonicum* in which the buds are flushed with rose colour.

S. OBASSIA.—A Japanese plant with large broadly-oval leaves sometimes 8 inches across, and racemes of fragrant

white flowers like a Snowdrop, and opening a little earlier than in *S. japonicum*. Two fine plants have grown for years without injury at Coombe Wood. In Japan it is 30 feet high, with bold leaf effect even when out of flower.

S. OFFICINALE.—A shrub from the Mediterranean, 12 to 15 feet high, with sweet flowers like the Orange, opening as little clusters in May or June. It needs the same care as *S. japonicum*, flowering and fruiting freely against a sheltered wall.

SWERTIA (*Marsh Swertia*).—*S. perennis* has slender erect stems, 1 to 3 feet high, terminated by erect spikes of flowers, which are greyish-purple spotted with black, and produced in summer. It is not showy, but interesting for the bog garden, or may be naturalised in damp peaty soil. Seed or division.

SYCOPSIS SINENSIS.—An evergreen shrub, in its native China a low tree growing at rather high altitudes. It is said by Mr Bean to be hardy at Kew. It is easily increased. Neat in habit and distinct in appearance.

SYMPLOCOS CRATÆGOIDES. — A summer-leafing shrub of elegant habit, native of China and India, where its fruit is said to be a brilliant blue. It has been little tried in our country as yet.

SYMPHORICARPUS (*Snowberry*).—The common Snowberry (*S. racemosus*) is a familiar shrub, but we would exclude it from a choice selection; also the Wolf Berry (*S. occidentalis*), and *S. vulgaris*, the Coral Berry, or Indian Currant, which has small purplish berries in clusters. The flowers of these kinds are not showy, their growth is coarse, and they smother choicer things. Their chief value is for undergrowth in woods, or for ornamental covert (as birds eat the berries), and they will flourish anywhere. If admitted to the garden the clumps should be cut to the ground every spring to encourage young free-flowering shoots, and the roots trimmed deeply with a spade to prevent their spreading unduly.

SYMPHYANDRA.—Campanula-like plants of not high rank, *S. pendula* from the rocky parts of the Caucasus, having branched pendulous stems and large cream-coloured bell-flowers, almost hidden in the leaves. It is hardy, and rarely more than 1 foot in height. It does well with other Bellflowers, but is best seen at the level of the eye in the rock garden; it is also a good border plant in ordinary garden soil. Seed. The Austrian *S. Wanneri* rarely exceeds 6 inches in height, with deep mauve flowers borne freely on branching racemes. Like *S. pendula*, it prefers a light, warm, rich soil and a partially-shaded situation. *S. Hofmanni*, from Bosnia, is considerably taller than the others, with large white flowers and hairy leaves. All these plants are short-lived, and best regarded as of biennial duration only.

SYMPHYTUM (*Comfrey*).—Suited for naturalising in open sunny places, and, when well grown in masses, their foliage has a fine effect. The largest and best kinds for the wild garden are *S. asperrimum* and *S. caucasicum*. The Bohemian Comfrey (*S. bohemicum*) is a handsome perennial, about 1 foot high, with, in early summer, erect twin racemes of brilliant reddish-purple flowers. The variegated leaved form of the common Comfrey (*S. officinale*) has striking variegation, effective in a garden of hardy flowers, and thriving in any soil.

SYNTHYRIS.—A group of hardy little herbs from the Rocky Mountains, allied to *Wulfenia*, and forming neat tufts of elegant foliage with dense spikes of blue, purple, or white flowers. The best is *S. reniformis*, with tough, prettily-cut leaves, and spikes of bluish-purple flowers a foot high. These come in early spring or sometimes even in autumn, and the plant does best in a cool, shady place with free soil.

SYRINGA (*Lilac*). — Where these lovely shrubs are well grown they afford beautiful effects in the home landscape as well as fragrance. To no family has the harm done by grafting been more injurious than to the Lilac, when grafted on Privet for the sake of cheapness and increase. I lost ten years through a grafted collection; instead of growing up, the plants grew down and slowly perished. And so it has been in many gardens where Lilacs have been planted but rarely show their value, though so many superb varieties have been raised of recent years.

To secure the full value of the varieties that we now have, with their long racemes beautiful in colour if only well grown, the first thing is to insist

that none shall be grafted on the Privet. As to arrangement, the best way is to group our Lilacs in the sun: they are too often put away among mixed shrubs, where they deteriorate, owing to crowding.

Few shrubs are better worth pruning, without which they become a tangled mass of shoots, and we do not get the fine full thyrses of bloom that are seen in French gardens. On fading, the flowers should be removed, and the small and weak shoots also, if the plants are too "stalky," the aim being to secure healthy and open growth during summer. Cutting back in winter is wrong, because the flowers are produced on the wood of the previous year, and cutting back to a stiff ugly outline does not deserve the name of pruning. To prune is to help the natural shape of the bush and let the light into it, so that it can concentrate its energy on a number of strong flowering shoots.

We read sometimes that the Lilac will do in any soil, and so it may in districts where the soil is warm and good, as in much of Ireland, where the Rouen Lilac (commonly called the Persian) makes such lovely trees. Cold places in valleys are not so good for them, especially where heavy soil occurs, because being early the bloom is often caught by late frosts. Therefore, in addition to warm soil, we should try and secure positions not too low down and somewhat sheltered. Coming from a warmer and sunnier land than our own—Transylvania and the regions near—very cold soils and situations are against success.

Lilacs grow freely from seed if sown as soon as ripe. Cuttings are best made from the young wood in early summer, struck in sand on a hotbed, where they root in six to eight weeks. Layering should be done in early autumn, or suckers may be taken in spring and root readily. When once we have the Lilac on its own roots, increase from suckers is easy.

Though some of the old varieties were beautiful—even the common Lilac when well grown—to have a good Lilac-time it is essential to have the newer varieties raised in France, and remarkable for their full range of colour. The best are:—

SINGLES.—*White*—Marie Legraye, Princess Alexandra, Frau Dammann, Madame Moser, *alba pyramidalis*. *Pink*—Dr Regel, Eckenholm, Fürst Lichtenstein, *Schermerhornii*, Jacques Callot, and Lovanensis. *Dark flowers*—Dr Lindley, Ludwig Späth, Aline Mocqueris, Toussaint L'Ouverture, Volcan, Philémon, Président Massart.

DOUBLES. — *White* — Madame Lemoine, Madame Casimir Périer, Obélisque, Madame Abel Châtenay. *Lavender and blue*—Alphonse Lavallée, Président Grévy, Lamarck, Léon Simon, Monument Carnot, Condorcet, Doyen Keteleer, Guizot, Marc Micheli.

These double kinds have denser flower-clusters, and usually last longer than the single varieties, but they are not so pretty as the single kinds. An indispensable Lilac is the small Persian (*S. persica*), which, being dwarf and erect, is well suited for the outskirts of a group of Lilacs. Its small flower-clusters are a pale lilac, or nearly white. The pretty variety, with deeply-cut leaves (*laciniata*), must not be overlooked. The Rouen or Chinese Lilac (*S. chinensis*), also known as *S. dubia* and *S. rothomagensis*, is intermediate between the common Lilac and the Persian Lilac, and well worth growing. The large *S. Emodi*, from the Himalayas, is coarse in growth, and not remarkable for its pale purple flowers, which come later than the common Lilac. The Hungarian Lilac (*S. Josikæa*) is a pretty shrub differing from other Lilacs. It reaches a height of nearly 6 feet, and bears erect spikes of small pale mauve flowers. *S. japonica* bears in summer large dense clusters of creamy-white flowers, which somewhat resemble those of the Japanese Privet. Other kinds that have come to us recently from the Far East are *S. villosa* from Japan, which also attains a large size with abundant purple flowers about the middle of June. *S. oblata*, from China, is the first of all Lilacs to bloom, with loose clusters of purple or white flowers, and large heart-shaped leaves of glossy green which turn a wine-red colour in autumn. *S. pekinensis*, from the mountains of N. China, belong to the Privet-like group represented by *S. japonica*, and is of graceful form, though not quite so large a tree. It is very hardy and keeps its handsome foliage till late in autumn, but does not flower freely in a young state. *S. Tunnanensis* is among the best of the Wild Lilacs. Interesting as these species are from a botanical point of view, little is yet known of their beauty in our country, and such of them as have been tried have less

beauty than the finer forms of the old hybrid Lilac.

TAGETES.—The French and African Marigolds have long been favourite garden flowers. There are also perennial kinds, but they are too tender for out of doors, though one or two, such as *T. lucida* and *T. Parryi*, are desirable. The annual kinds are from Mexico, and the best are :—

T. ERECTA (African M.).—Known by its stiff, erect habit, and massive double yellow blooms. A peculiarity of it is that one-third of the seeds saved from the finest double flowers always produce single ones, while the rest are invariably double. The deep orange and pale yellow forms are pretty planted together. Sow seed under glass in April, for then, even without bottom-heat, they will start freely. When the young plants are 3 inches in height, dibble them out again either into a frame or under handlights to keep away slugs. When large flowers are desired the soil must be rich, and the buds thinned out.

T. PATULA (French M.).—A summer annual of varied colour, striped, mottled, and coloured with yellow, orange, chestnut, and other hues. Sometimes one plant has striped blooms, and at other times self-yellow or maroon flowers. Their unpleasant odour unfits them for cutting. There are now compact named forms of the French Marigold, not exceeding 9 inches in height, and free in their brilliant single or double flowers.

T. SIGNATA.—Allied to the French Marigold, but has much smaller flowers, either double or single. As it needs a little starving to induce it to bloom freely in beds and masses, the soil must be rather poor. Like all other Marigolds, it stands drought well.

TAMARIX (*Tamarisk*). — Graceful hardy shrubs, remarkably distinct in their feathery growth and pale pink flowers, produced in succession by the various kinds from May to October. No other woody plants we can grow in the open air give the same fine effect, yet they are often neglected owing to our way of mixing things together without regard to soil, exposure, and position. Lost in the jumble of the shrubbery they never give good effect, and often perish outright from the encroachments of hungry neighbours, but grouped apart with free air and space they are among the most graceful of shrubs. For the seashore they have no equal, thriving in pure sand and shingle, their fine branches splitting up the wind and the heath-like foliage indifferent to the salt spray. They are readily increased from soft cuttings rooted under glass, ripened cuttings which root in the open air, and even thick branches, which often root like a Willow if planted deeply while quite fresh. We are richer in names than in distinct kinds, for the same shrubs in slightly differing forms have been named over and over again in nurseries, and some of the species run so closely together that even botanists are puzzled. The following kinds are distinct :—

T. CHINENSIS.—A recent introduction. It is not quite so hardy as our native kind, though like it in many respects. It has very plumose branches, and is a most graceful shrub with pink flowers.

T. GALLICA (French Tamarisk).—Is found wild on the south-west coast of England, in France, and N. Africa. It is a shrub 5 to 10 feet high, or in N. Africa a tree 30 feet high or more. The flowers are pale pink, and borne on short cylindrical spikes in summer. *T. anglica* is one of the forms of this species, which varies much in different parts of its area.

T. HISPIDA (Kashgar T.).—This species is from C. Asia, and is distinct, the foliage being of a bluish-green colour. It flowers in autumn. A seedling form of this, *æstivalis*, differs widely again from the parent, being taller and more vigorous in growth, with flowers from July, or a full two months earlier. It is also of easier increase, and very desirable because of its season of flower.

T. ODESSANA.—A new kind, with soft grey-green foliage and handsome spikes of large rosy-white flowers. South-east of Europe and Asia Minor.

T. TETRANDRA.—Very like *T. gallica* in general appearance, but distinguished by having four instead of five anthers. It is quite hardy, growing and flowering freely near London. The flowers are pinkish-white. Caucasus.

MYRICARIA GERMANICA.—Nearly allied to Tamarix, and often figures in nursery catalogues under the latter name. It differs in having ten stamens to each flower. The branches are erect, rather sturdier than in the true Tamarisks, and the leaves are of a pale glaucous hue, the flowers white or rosy in June. It is a native of various parts of Europe and Asia.—W. J. B.

TANACETUM (*Tansy*).—An elegant variety of the common Tansy, *T. vulgare*, and much dwarfer in stature than it, is the var. *crispum*. Its emerald green leaves are smaller, and have a crisped appearance.

T. HERDERI.—A pretty plant for the rock garden, with silvery leaves on thick forked stems, which rise a few inches from the surface. The bright yellow flowers have a good effect on the silvery foil. Similar in height and effect is *T. argenteum*, which makes a shrubby mass of silver rosettes and golden flowers. Division.

TANAKEA RADICANS.—A Japanese alpine of dwarf carpeting and creeping habit, this is a recent introduction from Japan. The plant is evergreen, and forms masses of firm leathery leaves from which issue dainty feathery plumes of creamy-white flowers late in spring. Not more than 6 inches in height, it is of easy culture, and growing freely in peat and loam. A good rock garden subject for cool situations.

TAXODIUM (*Summer - leafing Cypress*).—*T. distichum* is a beautiful and stately tree, attaining in its own country a height of 150 feet. In our country it is of proved hardiness, though neglected since the advent of Californian and other half-hardy conifers. A native of marshy places, it is best planted in like situations in our country. From the roots of old trees its curious excrescences arise in the shape of great bald knobs 3 or 4 feet high. A tree of such beauty should be grouped wherever water enters into the home landscape, the fresh green of the leaves being a welcome gain. There is a pendulous form, but any other so-called varieties are better let alone. Secure healthy young plants from seed only.

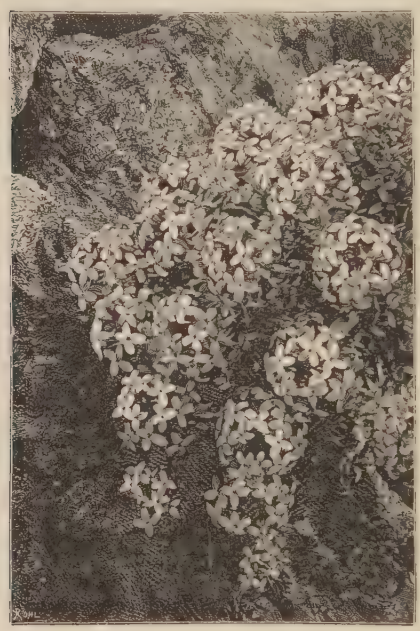
TAXUS (*Yew*).—This, one of the most beautiful of evergreen trees, has long been used in our flower gardens, clipped and distorted in what is called "topiary" work. Evelyn is said to have introduced the practice with the Yew, but probably it originated with very old gardens, in which the Yew tree stood by the door. In such a case clipping was necessary, but in modern gardens clipping of a less profitable kind is often resorted to, so that the Yew is seldom seen in its stately grace. Its misuse is evident in many of the great gardens of the world, such as Versailles, where nothing is more ugly than the Yews cut hard against the skyline, many of them distorted, diseased, and ugly from constant clipping for years. The best reason for Yew in gardens is its sheltering value. To put this vigorous forest tree into beds in a flower garden, and then clip it into various shapes, all ugly, is folly as to design and bad gardening, too. But with our modern stores of evergreens from many lands, the Yew is not our only garden shelter, and when we use it, let it be as far from our flowers as may be, for it is a voracious feeder, and a never-ending struggle with the roots has to go on. The effect of a background counts with some, and rightly; but in our days other fine evergreens give us good backgrounds, if we use them well—the Laurel, best of evergreens (miscalled in our land the Bay), the finest hardy Rhododendrons on their own roots (*i.e.*, from layers always), the graceful American trees like the Monterey and other Cypresses that require no clipping, and are far more lovely without the garden barber's attentions, and, best of all, our native Holly, the queen of evergreens. In previous editions of this book I included a number of varieties of the common Yew—a large number in some nurseries—which I have left out of the present edition, having never in my life seen any among those varieties at all comparable, for vigour, or grace, or any good quality, with our native Cedar.

The Golden and variegated Yews form striking groups of colour, but are better held together in bold picturesque groups than dotted at regular intervals—a practice fatal to artistic effect. The Irish Yew, a plant of striking form, has been over-used by those who do not consider the effect of things on the landscape. I have seen houses with Irish Yews in all directions destroying the good effect of other and far more beautiful trees, and the variety that should exist in every English garden.

TCHIHATCHEWIA.—A beautiful alpine plant, *T. isatidea*, native of Asia Minor, it is hardy and thrives on the rock garden. From a tuft of spathulate oblong leaves, formed in the first year, appear the flowers in the second season; the leaves are dark green, thickly covered with shining silky hairs, amongst which rise the flower-stalks, showing Syringa-like bright rosy-lilac flowers, fragrant like vanilla.

TECOMA (*Trumpet Creeper*).—Handsome and distinct climbing shrub of much beauty of habit as well as of

flower. They are not so often seen in our country as abroad, although well fitted for the southern and warmer parts, and in the case of one species



Tchihatchewia isatidea.

and its varieties, hardy, and flowering well against walls far north of London. Syn., *Bignonia*.

T. GRANDIFLORA.—A Chinese plant, not so hardy as the American Trumpet Creeper, but more showy, with drooping orange-scarlet flowers in large clusters. Its foliage, too, is larger, but to show its vigour and beauty the plant must have light soil and a warm wall. The following are varieties:—*Aurantia*, which forms a rounded bush if let alone, has fine foliage of a deep, shining green, with ribs covered with down. The flowers are orange-yellow and small for *T. grandiflora*, the lobes narrower and less open. In *Mme. Galen*, the handsomest of the race, the flowers are large, of a fine salmon-red, orange-red outside. *Rubra*, flowers a fine deep red, leaves hairy on the lower side, a distinct and pretty variety.

T. RADICANS.—Native of N. America, and an old garden favourite. Its long, wiry stems send out roots like Ivy, which cling to walls or any support. There is a variety named *major*, with larger flowers of a paler tint and more robust foliage. A strong plant will run up a wall 40 feet high. It is useful also for covering arbours and pergolas. It is also hardy, and has several varieties, viz., *Flava speciosa*, flowers long, orange-red; leaves distinct by their small, much indented folioles, with long narrow points. This form is dwarfer than the type and can be grown as a shrub. *Grandiflora atro-purpurea*, flowers deep red-purple and large. A vigorous shrub, requiring space to flower well. *Princei coccinea* comes between these, and is perhaps a hybrid. The flowers are large, of a fine cochineal-red, and in large panicles. *T. hybrida*, this form, a cross between *T. grandiflora* and *T. radicans*, has small, hairy leaves and handsome orange flowers in panicles.

TECOPHYLÆA.—*T. cyanocrocus* is a beautiful spring-flowering bulbous plant from Chile, of dwarf growth, and bearing large open deep blue flowers. The variety *Leichtlini* has a white centre and a sweet perfume. This variety is not thoroughly hardy, except in very mild localities, but it succeeds well under frame-culture. About August bulbs of flowering size should be planted 3 inches deep, in rich soil in a frame. If potted, a depth of 2 inches is sufficient, and plunge the pots. They should be kept cool, and have as much air as possible. The lights must be taken off in February and March, when the weather becomes warm, and the pots should remain exposed until the flowers begin to expand, when they may be transferred to the greenhouse.

Tecoma grandiflora.

TELLIMA.—Perennials of the Saxifrage order, from N. America, resembling Heucheras. *T. grandiflora* has leaves prettily coloured and veined like *Heuchera Richardsoni*, and spikes of small yellowish bell-like flowers, thriving in any soil. Division.

TEUCRIUM (*Germander*).—A group of low shrubs or perennial herbs of variable habit, with neat dwarf growth and lipped flowers of varied colour.

Not many are of any garden value. *T. Chamædrys* (Wall Germander) is 6 to 10 inches high, with shining leaves and reddish-purple flowers in summer. It is found throughout Europe on walls and rocks, in any light soil, whilst as an edging plant it is useful.

T. FRUTICANS.—A shrub from the south of Europe, with white stems clothed with green leaves silvery with down upon the under side, and pale blue flowers. It is hardy in the warmer parts of Britain, thriving in light dry soils in a sunny exposure and shelter from cold winds. Planted against a wall or in good soil near the sea, it grows several feet high. Cuttings.

T. MARUM (Cat Thyme).—Has some of the habit of the common Thyme, with bright red flowers in summer. Coming from Spain, it is likely to prove hardy only in the southern parts of these islands; then only on ruins, old walls, or in dry chinks in chalk or gravel pits. Cuttings.

T. MONTANUM.—A free-flowering rock plant, with numerous pale yellow blossoms on dwarf dense carpets of leaves that cling closely to the stones. This little shrub grows without trouble in a dry place, in rather poor soil.

T. POLIUM (Poly Germander).—A curious dwarf whitish herb, 3 to 5 inches high, with small pale yellow flowers densely covered with short yellow down in June and July. It is suited for sunny spots in the rock garden, and for light free soil, but is only hardy in southern gardens. Seed, cuttings, and division.

T. PYRENAICUM (Pyrenean Germander).—A dwarf hardy perennial, with trailing stems 3 to 7 inches high, and purplish and white flowers in dense terminal clusters. The leaves, branches, and stem are thickly covered with soft silvery down. It is suitable for the rock garden and for borders.

T. PURPUREUM.—A quaint, rigid, evergreen dwarf bush, 6 to 9 inches high, its erect twigs, studded with bright rosy-purple flowers, giving a bit of good colour late in the season. Seed, cuttings, or division. *T. hyrcanicum*, *T. lusitanicum*, *T. orientale*, and *T. multiflorum* are also noteworthy.

THALIA.—*T. dealbata* is one of the most stately of water-side plants. Its glaucous foliage and elegant panicles of purple flowers are welcome along the margins of shallow ponds or streams, and it is hardy in sheltered places. It is best grown in pots or tubs pierced with holes, in a mixture of stiff peat and clayey soil, and river mud and sand. The plant thrives only in warm places in the southern counties. S. Carolina. Division.

THALICTRUM (*Meadow Rue*).—Perennial herbs with elegant foliage, but not showy flowers. A few of the smaller species rival in delicacy of form and colour some of the charming Maiden-hair Ferns, and may be associated with flowering plants, or those of fine foliage. *T. anemonoides* (Rue Anemone) is usually only a few inches high, its white flowers being nearly 1 inch in diameter, and open in April and May. It is best suited for the rock garden in deep moist soil and partial shade. The double varieties may be preferred to the type, and there is also a pretty form with pale rosy sepals. N. America. *T. minus* forms compact slightly glaucous symmetrical tufts, 12 to 18 inches high. May be grown in any soil, but the slender flower-stems, which appear in May and June, should be pinched off. This bushy little tuft resembles the Maiden-hair Fern, and its leaves are just as pretty for mixing with cut flowers, and last much longer. The plants also look well isolated, in large tufts in borders or as an edging. Division. *T. adiantifolium* is similar. *T. tuberosum* is about 9 inches high, with graceful foliage, and abundance of yellowish cream-coloured flowers, It is hardy in a deep peat soil. S. Europe. Beside these dwarf kinds there are about two dozen other species, ranging from 3 to 6 feet in height. There is a great sameness among them, as all have finely-cut foliage. A good kind with fern-like foliage is *T. aquilegifolium*, which is about 4 feet high, and grows vigorously in any soil. There are two or three varieties of it, one (*atro-purpureum*) with dark purplish stems and leaves, and a second in which they are golden.

Kinds less well known but quite worth growing are *T. Chelidonii*, of doubtful hardiness, from the Himalayas, with charming pale lilac flowers and greyish-green foliage. *T. Delavayi*, of weak constitution, comes near this, with larger flowers of a rosy-violet colour and a very dwarf habit. Much the best and most ornamental of the violet-coloured Meadow Rues is *T. dipterocarpum*, from W. China. The plant reaches 6 feet or more high, and in July its elegant sprays sparkle with the violet-blue-white anthered flowers. A most charming plant. Happiest in loam, leaf-mould, and peat where moisture is not absent during the growing season. Easily raised from seeds. *T. petaloideum* is a dwarf-growing kind with white flowers. The taller sorts

are in general less desirable, but two good ones are *T. glaucum*, from S. Europe, growing 6 feet high in moist rich soil, with grey-green finely-cut leaves and feathery heads of pale yellow flowers; and *T. polygamum*, from the W. United States, which grows even taller in damp places, with fine spreading clusters of white flowers in July. There is a prettily variegated garden form of the first named.

T. DIPTEROCARPUM (Lilac Meadow Rue).

—A distinct and graceful plant, one of the best hardy flowers introduced for many years. Tall, of fine foliage and habit, with very beautiful flowers of lilac hue. Flowers in midsummer and is quite hardy, and a charming addition to the open-air flower garden. We are not sure as to its permanence, so it is well to add a stock of young plants. China.

All the Thalictrums do well naturalised, and are readily increased from seed or careful division in early spring.

Thalictrum aquilegifolium.

THERMOPSIS. — Perennials, 2 to 6 feet high, slender in growth, and with long terminal spikes of attractive yellow Lupine-like flowers. *T. montana* is of graceful growth, and as it flowers at the same time it may be associated with the perennial Lupins and other border plants of the season. It grows best in good soil in an open border, and is a native of western N. America. *T. rhombifolia* is dwarfer and with rounded leaflets, growing well even in the driest places. *T. fabacea* comes very near *T. montana*, and has been confused with it, but it comes from the north of Asia; it is of fine habit and very free-blooming. A scarce but good kind is *T. caroliniana*, which grows 6 feet high in rich moist soil and blooms in July and August when all the rest have done. For the back of the border, or for massing in moist places, this is a truly handsome plant. *T. barbata* is a beautiful Himalayan species with purple flowers. Some of these plants spread freely at the root, and may be increased by division or seeds.

THLADIANTHA.—*T. dubia* is a handsome creeping perennial of the Gourd family, from N. China and India, with long climbing stems bear-

ing many bright yellow bell-shaped flowers.

All the flowers on a plant are either male or female, so that unless both sexes are planted no fruit is produced. When the female flowers are hand-fertilised they set freely, and the egg-shaped fruits 2½ inches long are exceedingly handsome, green at first, changing to a bright scarlet. The pale green foliage is handsome and the stems run to a length of many feet from a tuberous root, which can be lifted in the autumn after the plant has died down. In the Cambridge Botanic Garden these plants fruit freely every season on an east wall.

T. OLIVIERI.—A new kind from N. China, hardy and vigorous, making shoots 30 feet long in the season. The rounded leaves are about 8 inches across, carried on long stalks. Clusters of yellow bell-shaped flowers appear from the leaf-axils from July to September. A handsome climber for warm walls or banks.

THLASPI. — Annual or perennial herbs of slight garden value. *T. latifolium* is a dwarf vigorous perennial from the Caucasus, 6 to 12 inches high, with large root-leaves, and flowers something like those of *Arabis albida*, but larger. Suitable for borders, the spring garden, and naturalising with the dwarfer flowers of spring. Division and seed.

THUNBERGIA.—*T. alata* is a beautiful half-hardy annual, and an elegant dwarf climber of the easiest culture, and in summer valuable for draping dwarf trellises. The flowers vary in colour: *alba* is pure white with a dark eye; *aurantiaca*, bright orange; *Fryeri*, orange with a white eye; *Doddsi* has variegated foliage; and there are others with yellow and sulphur flowers. The plants grow 4 to 5 feet high, and from July till October their slender stems are covered with bloom. Seeds should be sown in heat in early spring, and the seedlings potted separately when large enough. Raised in heat in May, plant them out in good light soil, but only fitted for warm gardens in the south.

THUYA (*Arbor-vitæ*). — Evergreen cone-bearing trees, some of much beauty, but the group is represented in gardens by numbers of worthless shrubs and mean trees; happily, the species are not so numerous as they seem from the many names that have been given to their mostly ugly varieties.

T. DOLOBRATA (Japanese Arbor-vitæ).—A distinct and beautiful evergreen tree, perhaps the most graceful of the group, fine in colour and very hardy. Fortunately it seems less ready than most to sport into the worthless dwarf and variegated forms. It is said to attain its finest stature in mountain woods in Japan, and to grow well under other trees, and it should be worth trying in like circumstances in our country. It comes very freely from layers, in fact, the lower branches of the trees root themselves freely, and these over-facile ways of increase make it all the more necessary that we should get healthy seedling trees, as suckers take bushy rather than tree form. Syn., *Thuyopsis*.

T. GIGANTEA (Giant Arbor-vitæ).—A tall and noble tree, fine in stature and form, hardy and healthy in our country, thriving in ordinary soils, and a free and rapid grower, attaining in its own country a maximum height of 150 feet, and its wood is fine-grained and very useful. N.W. America; finest on the Columbia River. Syns., *T. Lobbi*, *T. Craigiana*, *T. menziesii*.

T. JAPONICA (Standish's Arbor-vitæ).—A graceful evergreen tree of medium size, attaining a height of over 50 feet, with branches of a slender pendulous character of a fresh green colour. A native of the mountains of C. Japan, it was introduced by Fortune, and sent out by the late John Standish of Ascot, but has not yet been much grown. The form usually seen is said not to be the true wild tree—a reason for getting seed from Japanese sources. Happily this has not yet, like so many others, sported into a mass of varieties. Syn., *Thuyopsis Standishi*.

T. OCCIDENTALE (Western Arbor-vitæ).—A poor hardy evergreen tree which has varied much in colour and foliage and form. Ponderous Latin names have been applied to worthless varieties, of which over twenty are given in some catalogues. It is used to get shelter fences and hedges rapidly, though by no means so good for that purpose as our own native shrubs like the Yew, Box and Holly, and it would be no great loss to omit it from the garden altogether; all the more so, perhaps, as it is one of the cheap evergreens used in the muddle mixture of the common shrubbery.

T. ORIENTALIS (Chinese Arbor-vitæ).—A tree with little of the beauty of the Pine or Cypress, and which has, unfortunately, given rise to a crowd of varieties, variegated, silvery, golden, and other dense, monstrous, and pendulous shapes, mystified by Latin names. Not only are they poor in themselves, but they keep the mind away from the central

fact of the beauty, dignity, and great value of the Pine race. These varieties have again synonyms, and some of them get into cultivation under the wrong name of *Retinospora*.

THYMUS (*Thyme*).—Creeping plants suited for arid parts of the rock garden, spreading quickly into dense cushions, and not to be placed near minute alpine plants. Nothing can be more charming than a sunny bank covered with the common wild Thyme (*T. serpyllum*) and its white variety. *T. lanuginosus* is a woolly form of our wild Thyme, forming wide cushions in any soil. The Golden Thyme is 9 inches high, dense and compact, and used for edging. Other varieties of the Common Thyme are *grandiflorus*, with larger flowers of the same colour, *splendens* and *coccineus*, in which they are bright crimson, and excellent for bright patches of colour; *micans*, with rosy-purple flowers; and *rotundifolius*, very dwarf and profuse in flower. The minute creeping and Peppermint-scented *T. corsicus*, with flowers so small as to be almost invisible, should be planted in every rock garden. Other kinds in cultivation are *T. azoricus*, *T. azureus*, *T. bracteosus*, *T. Zygis*, *T. thuriferus*, and *T. Chamædrys*.

TIARELLA (*Foam Flower*). — A small group of slender perennial herbs, flourishing in almost any soil or position, best in partial shade and a moist soil. *T. cordifolia* bears little starry creamy-white flowers, the buds delicately tinged with pink, a well-flowered mass seen a few yards off having a close likeness to a wreath of foam. The young leaves are tender green, spotted and veined with deep red, while the older ones at the base of the plant are of a rich red-bronze. *T. unifoliata*, with white flowers and rosy stamens, is also good.

TIGRIDIA (*Tiger Flower*).—Bulbous plants with very showy flowers, not hardy generally, requiring similar treatment to Gladiolus, though in some of our most southerly counties they would be safe in light soil and a warm position. Annual lifting, storing, and spring planting are needed, and the bulbs are better freed from the bulblets of the previous season. In warm gardens, where the bulbs are left in the ground all the winter, they should be well protected with ashes. Choose the sunniest spot in the garden. A sandy loam lightened by leaf-mould is the best to ensure a strong and rapid growth. From about midsummer onwards till September, or even later, the plants will be in bloom. In October the foliage turns yellow as the bulbs ripen; lift by November, bunch them, and hang in an airy shed till dry. As flower garden plants they are not of much value in cool soils.

The best known species is *T. Pavonia* from Mexico, a plant of many forms and garden varieties, differing in shape or colour from the parent, with its large flowers 5 inches across, glowing in scarlet and orange. Among the most distinct varieties are :—

T. P. CONCHIFLORA.—Flowers with outer segments yellow, heavily blotched with red at the bases, and with inner segments similarly variegated. The names *canariensis* or *conchiflora grandiflora* probably represent a form differing slightly as regards brilliancy of colour, but it is undoubtedly a seedling form of the original *T. conchiflora*. Though the small flowers of this kind are refined and beautiful, the plant is rather weakly, increases slowly, and is apt to perish.

Tiarella cordifolia.

T. P. GRANDIFLORA. — Flowers larger and brighter in colour, with fuller and more rounded petals. Under this name

I would also include the names *speciosa, splendens, coccinea,* and *Wheeleri.*

T. P. LILACEA.—Flowers with rosy carmine sepals and petals, the bases variegated with white, a cross between *T. Pavonia* and *T. Pavonia alba.*

Tigridia Pavonia alba immaculata.

T. P. ROSEA.—Flowers with rose-coloured sepals and petals, the bases variegated with yellow, a cross between *T. Pavonia* and *conchiflora.*

TILIA (*Lime; Linden*). — Mostly summer-leafing trees of northern and temperate regions, often cut into ugly shapes in Continental gardens. By far the best effect of the tree is when it is allowed to take its natural shape, and its fragrance is often welcome on the lawn. The "pleached" alleys of old English gardens were often made of this tree, but these are much easier got now from various trees of better colour and leaf, such as the fine-leaved Acacias or graceful fruit trees like the Japanese and other crabs, which, while giving us the shade we seek, give flowers in season. Some of the Limes are very handsome trees, hardy, fine in form and leaf, and good on the lawn or in grove, but, as few places have space enough to represent all the trees of this genus, the best way is to make a selection of the stateliest and best. There is some talk now of hybridising forest trees, which, considering the beautiful ones we already have, seems no very necessary mode of research; also, variegated and mean types of the tree should be avoided, and especially grafted trees. Some of the rarer kinds are grafted on the common one.

T. AMERICANA (Basswood).—A vigorous round-headed tree covered with ruddy bark, the leaves larger, more pointed, and of darker green than in the Common Lime, while the flower bracts are also larger and come about ten days later, giving place to yellow pea-like fruits. The tree is spreading and needs space, and it bears drought better than the Limes of Europe.

T. ARGENTEA (White Lime).—A stately tree sometimes 80 feet high, but mostly about half that height, with heart-shaped leaves of a fine silvery colour underneath, and lasting fresh much longer than on the Common Lime. This is a precious tree for grouping where its fine colour can tell in open parkland or upon the fringes of woodland, for which seedlings can be used, but not grafted trees.

T. DASYSTYLA (Crimean Lime). — A handsome tree from S. Russia, with lustrous dark-green leaves on bright green twigs, lasting fresh longer than on the Common Lime. The young growths give pretty tints of red and yellow, and the pale flowers come early in August.

T. PETIOLARIS (Weeping White L.).—Though the silvery effect of this tree is fully as beautiful as that of the White Lime, it is very different in habit, every shoot drooping gracefully, while the leaf-stalks are fully twice as long as in *T. argentea.* It is a strong grower even on poor soils, reaching a height of 60 feet or more, and resisting drought; the flowers large, in July. The leaves are large, rounded, and so twisted as to show the hoary under side even in repose. S. Russia.

T. PLATYPHYLLOS (Broad-leaved L.).—A variable tree, attaining at maturity a height of 90 feet, with dense ample leaves, sometimes downy on both sides and always underneath. It is the first of the Limes to bloom, the flowers coming in June and followed by hairy thick-celled capsules. The effect of this stately tree is marred by its early loss of leaf, especially in a dry season. There are many varieties, including *pyramidalis,* of erect habit; *rubra* and *aurea,* with red or yellow bark; *asplenifolia* and *laciniata,* dwarf trees with cut leaves; and *vitifolia,* in which they are lobed like a Vine.

T. VULGARIS (Common L.).—Not a native of Britain, though freely natura-

lised. The Lime seldom sows itself in this country, but no tree is more easily increased by layers.

Two or three new Limes have come from E. Asia, and are coming into cultivation. These are *T. mandschurica*, which, in its own land, makes a spreading tree of 50 to 60 feet, of pendulous habit. From nearly the same region comes *T. mongolica*, a slender low-growing tree of graceful appearance, with very small rounded or three-lobed leaves. Perhaps the finest of the entire genus is *T. miqueliana*, from the forests of Japan, where it reaches a height of 100 feet. There are also an increasing number of hybrid Limes, some of which promise to be of value.

TOWNSENDIA (*Rocky Mountain Daisy*). — A group of low-stemmed annual or perennial herbs with large Aster-like flowers, from the mountains of N.W. America. In some kinds the flowers are large and handsome, but only three are as yet in cultivation. *T. grandiflora* is a dwarf plant with grey foliage and large white flowers; *T. sericea* makes stemless rosettes of silvery leaves with a stemless flower 1 to 2 inches across in the centre of each, the rays of which are pure white or tipped with purple. This plant flowers so early as to have earned the name of Easter Daisy with the colonists. *T. Wilcoxiana* is a pretty little alpine plant of creeping habit, with rosy Aster-like flowers in May and June. All the kinds need a sheltered sunny place in light dry soil, and their degree of hardiness is not fully known.

TRACHELIUM (*Blue Throatwort*).— *T. cæruleum* is a much-branched perennial, 1 to 2 feet high, bearing in summer broad clusters of small blossoms, blue in the type and white and lilac in the varieties. It can be grown only in the warmest situations in dry borders, rocky banks, and old ruins or walls. It is an elegant plant for vases, etc. Mediterranean. Seed or cuttings. *T. rumelianum* is a much dwarfer plant from Greece, requiring similar treatment and bearing pale violet flowers.

TRACHELOSPERMUM (*Chinese Jasmine*).—Climbing shrubs with evergreen leaves and fragrant white flowers, hardy upon warm walls in favoured places. *T. jasminoides* (once known as *Rhynchospermum*) was formerly much grown under glass, but has done well in the open air in the south and south-west of England and Ireland. Even in the north of Wales there is a sheltered house-front near the sea completely covered with it. The plant flowers well at Gravetye against a west wall without protection. *T. crocostemon* is even hardier, growing and flowering on a wall at Kew, with protection in severe weather. Until lately this plant passed as a narrow-leaved variety (*angustifolia*) of the older one, but when it bloomed freely in 1903 the flowers proved to be distinct—creamy-white with an orange centre. *T. angustifolia* is also quite hardy on a wall facing east. These shrubs are neatly attractive, of rather slow growth, and the flowers useful for cutting. A light or peaty soil and a sheltered wall are the best conditions, with protection at the root during frost. They will grow well in partial shade. Increase by half-ripe cuttings of the young shoots, rooted in heat. Japan. Syn., *Rhynchospermum*.

TRACHYSTEMON.—Two species of hardy perennials belonging to the Borage family. *T. orientalis* is a dwarf border plant blooming in early spring. Its broad hairy leaves are a pretty bronze or purple colour while young, and the hairy stems of 9 to 12 inches carry long-stemmed rosy-purple buds opening as blue and white flowers. Thrives in any soil, and is readily increased by seeds or division. Asia Minor.

TRADESCANTIA (*Virginian Spiderwort*). — Perennials, some of them quite hardy, of which *T. virginica* with its varieties is the best. It is 12 to 30 inches high, and has showy purple flowers in summer. There are varieties with white, mauve, rosy-blue, and deep red flowers, and there are also double-flowered forms of most of these, as well as of the parent plant. They thrive in moist soil, and are useful for the mixed border. Division.

TRICUSPIDARIA.—*T. lanceolata* is a lovely flowering shrub from Chile, which has flowered in the open air at Castlewellan and in other sheltered seaside gardens for several years past. At Castlewellan it is planted in a shady border near a large Yew hedge, in peat, leaf-soil, and loam in equal proportions. It flowers twice a year, in the spring and in autumn, the colour of the flowers being a rich crimson. Being near the sea there is very little frost in ordinary winters, and the plant requires no protection, but in a less favoured

place it would be well to pot it and winter it in a cool greenhouse. Syn., *Crinodendron Hookerianum*.

There has recently come into cultivation a second species named *T. dependens*, and the fact that this name has for many years been used for the older plant has given rise to much confusion. *T. dependens* bears white bell-shaped flowers fringed around the

Tricuspidaria lanceolata. From a photograph sent by Lord Annesley.

mouth, drooping gracefully from the under side of the branches of an elegant evergreen shrub, which thrives in the open air in our warmest coast gardens. Like the older kind, it comes from Chile, and has already reached a height of 7 or 8 feet at Carclew in Cornwall.

TRICYRTIS.—*T. hirta* is an interesting Japanese perennial, about 3 feet high, with slender erect stems terminated by a few curiously-shaped pinkish blossoms, spotted with purplish-black. It is perfectly hardy, but flowers so late that it is invariably damaged by frosts. The variety *nigra* flowers three weeks earlier, and is therefore better, whilst the flowers are more attractive. Other garden forms of this species are *grandiflora*, its white flowers spotted with purple; and *variegata*, with finely marked foliage of charming effect in a moist shady spot. *T. pilosa* is dwarfer and rarer than *T. hirta*, but is otherwise a similar plant. *T. macropodum* bears yellow and black flowers, and blooms much earlier than the other species. They all thrive in a moist peat border, partially shaded, and if somewhat protected so much the better.

TRIENTALIS (*Star-flower*). — *T. europæa* is a delicate and graceful plant found over Europe, Asia, and America, in shady, woody, and mossy places. It has erect, slender stems, rarely more than 6 inches high, bearing one to four flower-stems, each with a white or pink-tipped star-shaped flower in early summer. Healthy well-rooted plants are not difficult to establish among dwarf shrubs in some half-shady part of the rock garden, in peat soil. Flowers in early summer. Division.

TRIFOLIUM (*Trefoil*).—Among the few garden varieties are some dwarf creeping kinds, the best being *T. uniflorum* from Syria, a neat trailing plant with pink and white flowers, borne singly, and studded profusely over the plant. It delights in an exposed position on the rock garden, with an open space on which to creep. *T. alpinum* is a stout spreading kind, 3 to 6 inches high, bearing large, but not brilliant, flowers in summer, the upper petal flesh-coloured and streaked with purple. *T. rubens* is a stout perennial, about 1 foot high, with large dense heads of carmine flowers in early summer. It grows almost anywhere, but prefers dry, calcareous soils. *T. pannonicum*, with creamy-white flowers, is ornamental. "Calvary Clover" is the common name of a pretty variety of the white Dutch Clover, in which the leaves are almost entirely of a deep bronze-purple colour; it quickly spreads into a dark carpet of singular effect. Division or seed.

TRILLIUM (*Wood Lily*). — Perennials of low growth, which inhabit the woods of N. America. The finest is *T. grandiflorum* (White Wood Lily), one of the most beautiful hardy plants, 6 to 12 inches high, with on each stem a lovely white three-petalled flower, fairer than the white Lily, and almost as large. It is a free-growing plant of goodly size in a shady peaty border in open air; but in a sunny or exposed position its large soft green leaves do not develop. Depressed shady nooks in the rock garden or the hardy fernery suit it admirably. In the rosy variety

the rosy hue is most pronounced in the young stage, and the leaf-stalks and the foliage are of a more bronzy shade of green. Other distinct varieties are *maximum*, with stems very stout and twice the usual height, while the flowers are 4 to 6 inches across; and *palustris*, a form specially adapted for wet ground, and nearly equal in vigour to that just described. Thus is the kind found by far the best in shade. Its *rivale* is a dwarf kind, well spoken of for the rock garden, but I have not seen it.

TRITELEIA (*Spring Star-flower*).—*T. uniflora* is a delicately-coloured, free-flowering, hardy, bulbous plant, 4 to 6 inches high; the flowers white, with bluish reflections, and marked on the outside through the middle of the divisions with a violet streak, which is continued down the tube. They open at sunrise, and are conspicuously beautiful on bright days, but close in dull and sunless weather. The plant comes into flower with or before *Scilla sibirica*, and during April remains in effective bloom. It does well in pots, revels in chalky loams, and even in an unfavourable position in clay. There are several forms, which differ in the shade of their flowers. Associated with the best Scillas, *Leucojum vernum*, *Iris reticulata*, dwarf Daffodils, and the like, *T. uniflora* is delightful, and is equally useful for the rock garden, borders, or edgings. S. America. *T.* (*Leucocoryne*) *alliacea* is nearly allied, less pretty, and thrives under similar circumstances. For other species *see* BRODIÆA.

TROCHODENDRON. — The only species is *T. aralioides*, a rare evergreen shrub from moist mountain woods of Japan, hardy in our southern gardens. It is of somewhat straggling habit, with loosely-clustered pale green leathery leaves and handsome greenish flowers three-quarters of an inch across, clustered together at the tips of the shoots as in Ivy and Aralia. In Japan the flowers are followed by fleshy fruits.

TROLLIUS (*Globe-flower*). — Handsome stout perennials of erect habit, needing no support. They may be grown in borders or by streams, and in moist loam, where they give delightful effects. They are of dense growth, foliage and flowers rising from an underground crown with deep-searching roots. The flowers vary from a pale yellow to a deep gold. The Globe-flowers are at their best in May and June, though old-established plants may develop a few flowers in September and October. Division in September; also easily raised from seeds.

Trillium grandiflorum (White Wood Lily).

T. ACAULIS.—A native of the Himalayan Mountains, and one of the most charming dwarf bog plants, 4 to 6 inches in height, its bright yellow flowers, 2 inches across, suffused with purple-brown on the outside. It is hardy, and will be found most useful for the low or moist spots in the rock garden.

T. ASIATICUS (Orange Globe-flower), which also includes *chinensis*, *Fortunei*, and other forms, has rich orange-yellow flowers and bright orange-red anthers, is hardy even in the most exposed positions, and differs from the European Globe-flowers chiefly in its less globular flowers, small finely-divided foliage, and taller growth. China and Japan.

T. EUROPÆUS (Globe-flower).—Grows about 15 inches high, has lemon-yellow flowers, and is an extremely variable plant, so much so that almost every locality has its particular form. Raised from seed it also gives much variety in habit, flowers, and foliage, two of the choicest forms being *albus*, with creamy-white flowers, and *superbus*, with large flowers of soft pale yellow. *T. europæus* has various forms. A few of these are distinct, *dauricus* being noted for its large bloom and large much-divided leaves on long olive-green foot-stalks. There is also *T. albiflorus*, with white flowers, found on the mountain tops in Colorado.

T. LEDEBOURI.—A valuable late-flowering species with rich orange flowers and conspicuously protruding stamens. Very desirable, too, is *T. pumilis yunnanensis*, from China, with handsome glossy foliage and large, almost salver-shaped, clear yellow flowers.

T. PATULUS (Bees' var.).—A pleasant surprise—the handsomest hardy flower since the coming of the Pontic Kingcup—of the richest, softest yellow. It makes me regret my neglect of the Globe-flowers, and resolve to plant a big group of them, with this Kingcup, in a good place.

More distinct and valuable than the many wild forms running one into the other are the hybrids and garden seedlings, of which there is an increasing number. Even in these the differences are mainly in habit and form of flower, there being little variation in colour. Orange Globe and Prince of Orange give rich well-formed flowers of intense colour; *Gibsoni* and T. S. Ware are also good in this shade. Golden Globe and Newry Giant are fine yellow varieties, the latter especially tall and vigorous; while Yellow Globe and Lemon Queen bear soft pale yellow flowers, the last being considerably the taller of the two.

TROPÆOLUM (*Nasturtium*).—Plants of the mountain region from New Granada to Chile, seldom descending into the plains, and therefore not requiring great heat. This, indeed, is against them; on the other hand, the first frost cuts most of them to the ground. They love a half-shaded situation in the open air during summer. There are annual and perennial species, and the perennials may be divided into groups, with fibrous and with tuberous roots. The rapid growth of the annuals, *T. majus* and *T. minus*, is proverbial, and their hardiness in a temperature above freezing-point, as well as their indifference to soil, makes them useful where anything unsightly is to be hidden. The following are the most fitted for the open air:—

T. ADUNCUM (Canary Creeper).—A favourite, and almost unrivalled for elegance among native creepers. Its home is uncertain. It occurs all over the west of S. America, from Mexico to Chile, but it has doubtless spread from the Andes. It thrives in sun or shade, but is best in a north aspect, festooning trellises, arbours, shrubs, etc., and rarely fails even in town gardens. Seeds should be sown in April in the open ground in sandy loam. Syn., *T. canariense*.

T. LOBBIANUM.—This fine annual climber is easily known from the old *T. majus* by its hairy foliage, though the flowers are in similar shades of yellow, scarlet, and crimson. The plant will clothe unsightly spots, seeds being sown about the middle of April. The plant has a pleasing effect sown here and there amongst shrubs. As the plants grow they attach themselves to the bushes, and climbing over or through them, throw out wreaths of lovely blossoms, which retain their beauty until frost.

T. MAJUS (Large Indian Cress).—A showy annual, coming into flower more quickly, and few bloom longer. In poor soil the *compactum* forms bloom best. Their rich colours are superb in masses, and they are never without flowers from first to last. All who love rich masses of colour will find these dwarf Nasturtiums worth a place in some of the many fine sorts now obtainable.

T. PENTAPHYLLUM.—A rapid-growing climber, 6 to 10 feet high, with greenish-red flowers. It will cover pillars, walls, chains, bowers, and revels in sunshine, succeeding well on the south wall of a greenhouse or in any warm aspect. It does best in light and warm loams or calcareous soils. Division or seed. Chile.

T. POLYPHYLLUM.—One of the most beautiful trailers introduced. While its foliage may form a dense carpet on a bank, its wreaths of yellow flowers follow in windings and groupings, its leaves glaucous and cut into fine leaflets. In a warm rock garden the stems creep about, snake-like, through the neighbouring vegetation, sometimes extending 3 or 4 feet. The root is tuberous, and increases in the earth borders. It springs up early, and dies

down too soon after flowering—its only fault. It is hardy in my garden, and thrives in various positions. Chilian Cordilleras.

Tropæolum polyphyllum.

T. SPECIOSUM (Flame Nasturtium).—A splendid creeper, with long and elegant annual shoots, clothed with leaves from the axils of which spring brilliant vermilion flowers. Quite a free grower in Scotland; in the south it is best among shrubs and in half-shady spots, also often thrives in hedgerows. It makes its way through evergreen shrubs, and enjoys a deep, rich, and rather moist soil, in cool places, or near the sea, where no pains should be spared to establish it. At North Walsham (5 miles from Cromer), the curtains of growth, flower, and fruit against the high walls are among the features of these well-known gardens.

A correspondent wrote to *The Garden*: "This beautiful climber dislikes hot sun and a dry atmosphere, and this accounts for many failures in growing it. Several years ago a friend who knew nothing of the plant received some roots from the fine old plant at Lismore Castle. By my advice some were planted against a west wall, in front of which grew some good-sized Nut-bushes and Apple-trees, so that in the hot summer weather the sun could only reach the plants for a couple of hours daily. The remaining roots were planted against a north wall with scarcely any sun, and at the west end of the dwelling-house, where the full force of the afternoon sun was felt. In all these cases the soil was alike. The plants behind the Nut-bushes and Apple-trees grew remarkably well, and bloomed as freely as could be expected in the first year of planting. On the north wall the growth was good, though the flowers were not so numerous; but in the sunny position, although the roots made a little growth, they withered away as soon as the sun made itself felt. There could be no better proof that success with the Flame-flower is a matter of position, and that, even in the southern counties, there are probably few gardens where its requirements cannot be met.

"When a position is selected, the soil should be made light, deep, and free by leaf-mould, peat, fibry loam, and sand, according to the nature of the ground. Mulch in summer with an inch or two of leaf-mould or manure to prevent excessive evaporation; and whatever manure is used, it must be well decayed. The young plants should be planted in spring, the roots being inserted 6 or 8 inches in the soil and well watered." Division and seed.

Tropæolum speciosum in Scotland.

TSUGA (*Hemlock Spruce*).—A distinct and graceful group of evergreen cone-bearing trees, remarkable for

their fine form of leaf and graceful toss of branchlet, and also, in their own country at least, for picturesque and stately form. The one best known in Britain is the Canadian Hemlock Spruce, a tree of proved hardiness in our country, but rarely showing the dignity of form it does in its own, probably from the use of cutting plants. No tree of the Pine race should be planted except as healthy seedlings. The splendid forms of these trees, so promising for our country, coming as they do from moist, cool regions, will be best secured in that way.

The Japanese and Indian species of this family, *T. Sieboldi*, *Brunoniana*, and *diversifolia* are not proved to be of such distinct value as the American kinds. Syn. *Abies*.

T. CANADENSIS (Hemlock Spruce). — A forest tree sometimes over 100 feet high, with a diameter of 4 feet in the trunk, inhabiting very cold northern regions from Nova Scotia to Minnesota and southwards along the mountains. It has been much planted in England, but it has not so far seemed to attain the stature and form that it shows in Canada. Its rather numerous varieties are of slight value. In my own planting of the Hemlock Spruce near water, while the growth is free, constant, and unharmed by any winter, I am vexed to see every tree breaking from the bottom into half a dozen or more stems, splitting up the energies of the tree. I have seen a very pretty hedge of the Hemlock Spruce near Philadelphia. It would prove, I think, a good evergreen hedge plant where the dangerous poison of our own Yew makes its use impossible in any place to which horses or cattle have access.

T. MERTENSIANA (Western H. S.).—A noble tree of fine and picturesque habit, allied to the Eastern Hemlock but larger—sometimes 200 feet high, with a trunk diameter of 10 to 12 feet. Coming from such fog-moistened regions as Puget Sound, British Columbia, and the coast region of N. California, we look for a tree hardy enough for our island climate, and in this noble Hemlock we have it. The foliage, as graceful as a Fern, is of a deep, lustrous green, and silvery-white beneath. Though hardy in this country, it is best in sheltered places in deep moist soil. Syns., *Abies mertensiana* and *Albertiana*.

T. PATTONIANA (Alpine H. S.).—A beautiful and stately tree 100 to 150 feet high, and from 6 to 10 feet in diameter of trunk, with dark green foliage on slender branches that sway in the slightest wind. Alpine and sub-alpine forests in the Sierras of N. California, the Cascades and northern Rocky Mountains, often at great elevations. Hardy and at home in Britain.

T. TSUGA (Japanese H. S.).—This tree, known also as *T. Sieboldi*, is as graceful in growth as the Canadian Hemlock Spruce and fully as hardy. It takes more of the character of a large and dense spreading bush than of a tree, and is useful for grouping with other conifers.

TULIPA (*Tulip*).—Among the most beautiful of hardy bulbous flowers, the finest self Tulips being unsurpassed for brilliant colour. We need to plant the best kinds in quantity, for exquisite as the striped or flaked Tulip may be, it is the self-colours that give the best effect. Tulips have been so long grown and are so variable in character that there is considerable confusion with regard to them. The popular garden forms may, broadly speaking, be separated into two classes, early and late flowering. *T. suaveolens*, from S. Russia, is now regarded as the type of the numerous early-flowering varieties, of which Duc van Thol is a familiar example; but these, though commonly planted, are of less value for the garden than the later forms which open in May. These have all come from *T. Gesneriana*, and whilst possessing infinite variety of colour, all have the fine form and stately character of the parent. These late Tulips, following the Daffodils, are precious garden flowers of easy culture, still less grown than they should be. For about three centuries they have been grown by florists, who have raised numerous varieties, which form an enormous class divided into four sections—viz., breeders or self-flowers, bizarres, bybloemens, and roses. When a seedling flowers for the first time it is usually a self, and in a few years (but occasionally not until thirty years) it will break into the flamed or feathered state. A feathered Tulip has the colour finely pencilled round the margin of the petals, the base of the flower being pure, and in a flamed flower stripes of colour descend from the top of the petals towards the base. In the bizarres the colours are red, brownish-red, chestnut, and maroon, the base being clear yellow; in the bybloemens the colours are black and various shades of purple, the base being white; and in the roses, rose of various shades and also deep red or scarlet, the base being white again. Of these classes the late-flowering self-coloured "breeders" are the best of all for effect. The Parrot Tulips, with curiously cut and fringed petals,

are often strangely splashed and veined in various colours, and are valuable for their bright display.

Tulips are easily grown in the rich soil of old gardens, but where the land is cold and stiff or not well worked they have a tendency to die out. They may be planted from October to the middle of November, and the old Tulip growers used to put a little sand at the base of each bulb, but this is not essential. It is well to lift the bulbs every two or three years, or they become crowded and give small flowers. When the old flower-stems are turning yellow the bulbs may be taken up, dried, and stored till planting time or replanted at once if convenient, as nothing is gained by keeping them out of the ground. Most kinds increase by offsets, but some species rarely or never increase in this way, and recourse must be had to seed, sown when ripe to germinate the following spring, but the bulbs do not attain their full size for six or seven years.

Among the wild Tulips there are beautiful kinds distinct from the garden varieties; the larger kinds, noble flowers for free planting, and the smaller sorts gems of beauty for the rock garden or in beds and borders of choice bulbs.

T. ALBERTI.—Rather low-growing, with undulated leaves of a glaucous green colour trailing on the ground; the flowers red, somewhat resembling those of *T. Greigi* in shape, but the petals are marked at the base with a blotch of yellow margined with black. Turkestan.

T. AUSTRALIS.—Variable in colour, but always pleasing, allied to *T. sylvestris* but less robust, whilst the flower is more funnel-shaped and flushed on the outside with red. Syn., *T. Celsiana*.

T. BATALINI.—A small kind seldom exceeding 4 inches in height, with trailing leaves and rather large flowers (nearly 3 inches in length) of a pale yellow colour.

T. BIFLORA.—A species known long ago, and not very striking with its small pale yellow flowers, which, however, are borne in a cluster of three or four at the top of the flower-stem instead of being solitary, as in most other Tulips. Caucasus.

T. CLUSIANA.—The dainty Lady Tulip came from the Mediterranean region as long ago as 1636, has small flowers, and is not more than 1 foot or so in height. The flowers are white, with a flush of rose on the outer surface, and purplish-black at the base. *T. stellata* is a near ally. It requires a deep vegetable soil and warm sheltered position.

T. CONCINNA.—A dainty late-flowering species from Cilicia, with rich red flowers 2 inches across, marked with bold black spots outlined in yellow, at the base of each segment.

T. DASYTEMON.—A fine new species, very distinct in habit and flower. In height it grows about 6 inches, with from four to seven flowers on a stem; in colour these are yellow edged white.

T. DIDIERI.—May flowering kind from the Alps, grows tall, and has large bright red flowers with black blotches inside at the base. A yellow variety named *Billetiana* is equally handsome.

T. EICHLERI.—Is another fine species with large leaves and broad flowers of an intense scarlet-red colour, the petals roundish in shape, having at the base a black blotch margined with yellow. Georgia.

T. ELEGANS.—Graceful bright-coloured kind, opens late in April, the flowers bright red with yellow eye, the petals long, tapering to a point.

T. FLAVA.—With bright yellow petals, rather spoiled by a bar of green down the centre; its flowers, however, continue quite a fortnight after those of all other Tulips are past.

T. GALATICA.—A dwarf Tulip, rarely reaching 9 inches high, and quite unlike other kinds in its very broad leaves and large cone-shaped flowers of pale yellow, flaked with green at the base on the inside, and touched with olive-green on the outside of each petal.

T. GESNERIANA.—This is the noblest of all Tulips, the parent of the large late-flowering race, and should be in every garden, planted in bold groups or broad masses. In Sussex I have seen charming effects secured by planting in quantity. In another instance the bulbs had been planted in a solid, but irregular line, on a dry, warm hedge-bank of turfy loam, and just through and above the great crimson blooms the common Quince had thrust its soft leafy branches, thickly set with small white or delicate rose-flushed flowers. It has an immense bright-red flower borne on a tall stem, sweetly scented, with a black zone inside at the base. The flowers last admirably when cut, and by artificial light they open as widely as by day. The finest form is that called *spathulata*. E. Europe and Asia. The so-called "Darwin" Tulips are self-coloured forms of this species.

T. GREIGI.—Introduced about the year 1871, it has not yet received all the attention it deserves. It is low-growing, the flower-stem seldom exceeding 8 inches in height, the leaves marked with purplish blotches and the large-sized flowers from over 3 to nearly 4 inches in length, of a dazzling vermilion-red colour faintly marked at the base with a dark spot. It is hardy, comes into flower about the

middle of April, and few things can equal it for brilliant display.

T. HAGERI.—Bears glowing flowers in dark red, yellow, and black. In a good new form, *nitens*, they are orange-scarlet shaded with bronze on the outside, and opening in May. This is a neat grower of about a foot in height, very free and of vivid colour if given a warm place.

T. KAUFMANNIANA.—One of the finest kinds, hardy, flowering in April. It grows from 8 to 12 inches high, with broad, flat leaves, flowers very large (nearly 4 inches in length), generally white, or pale creamy-yellow tinged with pink on the outside, the petals marked with a broad orange blotch. A fine early-flowering form of this, *aurea*, bears flowers that are pure yellow or orange. Yellow inside, and shaded with red on the outside. Turkestan.

T. KOLPAKOWSKYANA. — A brilliant species, not exceeding 1 foot in height; the large flowers (3 inches or more in length) are a lively red, sometimes yellow with minute blotches or spots at the base. The variety *splendens* differs from this in its deep yellow flowers, suffused with scarlet on the outside. Turkestan.

T. LEICHTLINI.—Grows 1½ feet high, with a flower always erect, the three outer petals bright purple, with a broad white margin, the inner ones yellowish-white, much shorter than the outer, and with rounded tips. Kashmer.

T. LINIFOLIA.—Has glaucous leaves deeply undulated and flowers of a dazzling red colour, with small black spots at the base. *T. Dammanniana*, from Syria, comes near this, but is more sensitive to cold.

T. LOWNEI.—Bears delicate Crocus-shaped flowers, opening in April to a star shape, on stems of about 6 inches. Their colour is a tender rose or rosy-lilac, with a yellow base.

T. MACROSPEILA.—Closely allied to *Gesneriana*, flowers late in May; it has large bright crimson flowers, with a distinct black yellow-bordered blotch at the base of each petal, and stamens, also black, about one-third the length of the flower.

T. MACULATA.—A well-marked form with a hairy stem and bright red flowers, having a black blotch at the base, flowering towards the latter end of May.

T. MICHELIANA.—Allied to *T. Greigi*, and like it in its variegated leaves, only that here the brown colour is in streaks instead of in spots. It grows somewhat taller, and the flowers are a darker crimson shaded with purple. Turkestan.

T. MONTANA.—Distributed over a considerable area in Armenia, Persia, and Afghanistan. A species seldom exceeding 6 inches in height, with flowers resembling those of *T. Oculus-solis* of the south of France, usually red, but sometimes yellow.

T. NITIDA. — A slender kind from C. Asia, the home of so many Tulips. It comes near *T. Gesneriana*, and is a dwarf plant with narrow grey leaves and bright scarlet flowers spotted with black at the base on the inside, the outer petals being a paler orange-red colour. It flowers towards the end of April.

T. OCULUS-SOLIS. — Very distinct, its flowers brilliant scarlet, with an eye-like blotch at the base of each petal, of a shining black colour, bordered with yellow. *T. præcox* is apparently an early form of this, but more robust in growth.

T. ORPHANIDEA.—A fine species, is closely allied to *T. sylvestris*, and has large yellow flowers, tinged with red on the outside. Greece.

T. OSTROWSKYANA.—One of the newer species from Turkestan, is allied to *T. Oculus-solis*, and has bright red flowers with black blotches at the base.

T. PERSICA.—A charming dwarf kind, best for edgings, narrow borders, or use in the rock garden, where its fragrant flowers unfold in twos or threes during May. They are a bright yellow, shaded with bronze on the outside.

T. PRÆSTANS.—A very distinct plant, in which there are sometimes only one and sometimes as many as three, six, or even ten flowers on a single stem. The orange-red buds appear early, opening to a pretty pale scarlet, and the finest flowers measuring 6 inches across. The plant varies in height from a few inches to 18 or more, with stems and leaves thickly covered in soft white hairs.

T. PRIMULINA. — Another fragrant species, coming near *sylvestris* and blooming in April and May. The creamy-white flowers are edged and occasionally flushed with pink on the outside, and pale yellow within. N. Africa.

T. PULCHELLA.—From the alpine regions of the Taurus. It has purplish-red flowers with black and yellow markings.

T. RETROFLEXA. — Probably a cross between *acuminata* and *Gesneriana*, is a truly beautiful kind, growing 2 feet in height, with recurved flowers of a pure soft yellow, striking, distinct, and one of the easiest to grow.

T. SAXATILIS.—A fine species, growing from 12 to 16 inches high, with flowers a peculiar mauve tint, passing to yellow at the base. Crete.

T. SPRENGERI.—The last of the Tulips to open, this fine new species bears large scarlet flowers 5 inches across, which last well and are excellent in every way for cutting.

T. SYLVESTRIS.—A British species everybody ought to grow. It is pale yellow, with casual edgings of red, and frequently the scapes carry two flowers, but the most valuable property of all is its fragrance. There is a large flowered garden form distinguished as *major*.

T. TRIPHYLLA.—A rare and choice kind from Asia, with tapering flowers in varying

shades of grey, pale yellow, and orange. It blooms in April, and besides having a warm place, the bulbs must be lifted if they are to ripen completely.

T. TUBERGENIANA.—One of the largest in size of bulb, leaf, and flower, with tall hairy stems, very glaucous hairy leaves, and immense cup-shaped flowers in which the petals are much reflexed. Their colour is intense orange-scarlet, with a bold dark blotch at the base. Mountains of Bokhara. *T. ingens*, from the same region, comes near it, but is of dwarfer growth, and bears deeper-coloured flowers, and is less satisfactory in cultivation.

T. UNDULATIFOLIA.—Native of Asia Minor, 10 inches in height, has glaucous leaves deeply undulated at the margin, and flowers of a brilliant crimson-red, with black blotches margined with yellow at the base. Flowers in May, and is closely allied to *T. ciliatula*.

T. VIOLACEA.—A recent introduction; is also one of the first kinds to flower. It is a deep self-red colour and welcome for its earliness.

T. VITELLINA.—Has large finely-shaped flowers of lovely delicate yellow, and opens with the earliest of the *Gesneriana* section. It is a splendid Tulip, its dwarf sturdy habit fitting it to withstand heavy rains and winds.

T. WILSONIANA.—Allied to *T. Batalini* and *T. linifolia*, with the same narrow leaves and distinct bulb-coating. Flower of medium size, finely rounded, and of a peculiarly brilliant red. Turkestan.

The following kinds are in perfection about the middle of May, and may be relied on to make a garden gay: Bridesmaid, rose flaked white; *Buenaventura*, orange and gold; Cloth of Gold, yellow often flushed red; Dainty Maid, white and pale rose; *Elegans*, a fine scarlet, with *Elegans lutea*, a pale yellow; Firefly, crimson; Gala Beauty (Columbus), yellow and scarlet; *Gesneriana aurantiaca*, orange-crimson; Golden Goblet; Gold Flake, red and yellow; Inglescombe Scarlet, brilliant scarlet and very large; Isabella, creamy-white flaked rose; Ixioides, yellow and dark chocolate; La Candeur, white flushed rose; La Merveille, terra-cotta and orange-red; Leghorn Bonnet, sulphur yellow, with a distinct shape; *Macrospeila*, a fine shade of crimson and very fragrant; *Maculata grandiflora*, another fine crimson; Mars, blood-red; Mrs Noon, yellow; Nigrette, chocolate-purple; Parisian, white; Parisian, yellow; Picotee, white with pink edges; Sunset, gold and orange-red; The Moor, deep crimson.

SELF-COLOURED DARWIN TULIPS.—This new race of "breeders," selected from the older mother Tulips, yields brilliant flowers in many fine shades of colour, their centres clear and well defined, with in many cases a ring of white, gold, or blue, dividing the petal colour from the dark base. They grow 2 to 3 feet high, with flowers so massive and weather-resisting as to yield precious effect in the garden during May, and so vigorous where the soil suits them that the grass of meadows or woodland cannot choke them, even when left to themselves. Good kinds are Negro and Sultan, in dark shades of chocolate-black; Harry Veitch, crimson-purple and black; Dorothy, rose and white; Europe, salmon-scarlet; Flambeau, scarlet; Hecla, crimson-maroon; Loveliness, soft carmine; Queen of Roses, rose and blush; May Queen, rose and white; Mr Farncombe Sanders, rosy-crimson; Salmon King, cerise with white centre; Glow, vermilion touched with white; Clara Butt, salmon-pink; and Zephyr, soft rosy-lilac and white.

Tunica saxifraga.

PARROT TULIPS.—Good kinds are Admiral Constantinople, in shades of orange and scarlet; Cramoisi, brilliant, in deep crimson with blue-black markings; *Lutea major*, pure yellow; Markgraaf, gold, orange, and scarlet; and *Perfecta*, golden with a scarlet stripe.

TUNICA (*Sand Pink*).—*T. saxifraga* is a small plant with a profusion of wiry stems that bear numerous elegant

little rosy flowers. It forms tufts a few inches high, does best on poor soils, and thrives without particular care. It is a native of arid stony places on the Pyrenees and the Alps, but often descends into the lowlands, and is found on the tops of walls. A neat plant for the rock garden and fringes of borders, and thrives like a weed between the stones in a rough stone wall. Seed.

TYPHA (*Reed Mace*). — Graceful water-plants, hardy, easily grown, and very ornamental whether at the water-side or cut for decoration. *T. latifolia* is a native plant, growing in tufts of two-rowed flat leaves, 18 to 24 inches long and 1 or 1½ inches wide. From the centre of each tuft springs a stem 6 or 7 feet high, terminated in the flowering season by a close cylindrical spike 9 inches long, which is of dark olive, but changes to brownish-black as it ripens. *T. angustifolia* is like it except in the size of the narrower leaves and spike, and of the two is perhaps the more graceful. *T. minor* is a smaller form of it. *T. minima* is the smallest of the hardy kinds, 12 inches to 18 inches in height, with slender rush-like leaves and dense or globose heads, those of the other kinds being much longer than they are broad. Other kinds found in water gardens are *T. stenophylla*, with narrow leaves turned in a spiral and short thick spikes; and *T. Shuttleworthii*, like *latifolia* as to general appearance, but with leaves of a showy golden-green.

ULEX (*Furze*).—The native Furze is so beautiful and is so well suited for clothing dry banks and the like that it should be included among flowering shrubs. Where the common Furze grows wild the double variety is well worth planting, as it is more effective and lasts longer than the single kind. A dwarf sort, *nanus*, deserves a place, as it flowers at midsummer, when its commoner relative has done. It also is a native, and where it flourishes it makes a dense prickly bush 2 feet high.

U. STRICTUS (Irish Furze) is an uncommon variety of *europæus*. As all the kinds of Furze are difficult to transplant when large, the best plan is to get small plants of the double and of the dwarf kinds and to sow seed of the common single kind. In most nurseries the double Furze is kept in pots, and can be planted at any time. There are few finer sights than a bank of double Furze in full bloom, and this can be enjoyed in every garden. Vigorous pruning when the plants become straggling is all the attention needed. In severe winters all these plants are liable to be cut to the ground, but they start again little the worse.

ULMUS (*Elm*). — Summer-leafing forest trees of northern and temperate regions, and of importance in planting, though the dangerous habit of the common Elm, of suddenly dropping heavy branches, should make us cautious about planting it near houses. Kinds that may be of interest in botanical collections are not worth a place in private grounds, where only the most distinct and stately kinds should be planted. The practice common in many districts of forming avenues of Elms only might well be modified in favour of other trees of proved value, as the loss caused to Elm-planted villages and roadsides by storms is deplorable.

U. AMERICANA (Water E.).—A large and handsome tree inhabiting moist soil and banks of streams in N. America; quite hardy, and useful in Britain. There is a weeping variety.

U. CAMPESTRIS (Common E.).—This tree is naturalised in our river valleys, and often blown down by storms in numbers. If we wish to shade our road or walks with trees we certainly should take the trouble to find those which anchor themselves securely, and this does not.

U. MONTANA (Mountain or Wych E.).—A fine tree, distinct and handsome as a shade and lawn tree, and not so dangerous as the common Elm. There are numerous varieties, pyramidal upright growers, and, best of all, a weeping variety, a beautiful hardy and distinct tree thriving almost anywhere.

The best trees in this important group are the English Elm and the American Elm. What we should avoid are some hybrids and varieties of these. They have many names, and some of them I have never noticed as making good trees. Here, again, it is best to avoid hybrids and varieties, and choose rather the noble types.

UMBELLULARIA CALIFORNICA (*Californian Laurel*). — A handsome evergreen tree, seldom planted, though hardy in our southern gardens and suited to walls where too tender for the open. It might pass as a narrow-leaved form of the Common Bay, the resemblance in the shape of leaves and their texture being emphasised by a like fragrance being emitted when they are bruised. This is due to a volatile

oil present in such quantity that the fresh-cut brushwood burns readily, while from the leaves "Bay water" is distilled. The fragrance becomes oppressive and even dangerous in a confined space, causing sneezing, headache, and a kind of temporary paralysis in extreme cases. In its own land it makes a noble evergreen tree 90 to 100 feet high, with a trunk diameter of 4, 6, or even 8 feet in rare instances where the trees have endured for centuries. It flourishes upon the foothills and along the banks of watercourses, growing in dense groves which sometimes extend for miles, as beside the Eel River in Humboldt County. It is perhaps the most valuable timber tree of the North Pacific Coast, where its wood is in great demand for furniture and house decoration. The small greenish-yellow flowers appear as dense clusters, followed by fruits at first like a green Walnut in size and appearance, turning purple when fully ripe and hanging for many months. Imported seed germinates without difficulty. There are few better seaside trees, the foliage being dense and very resistant and its colour distinct and good. It grows freely in a dry porous soil, and in default of seed may be increased by cuttings taken in early summer; but seed is in every way best. Syn., *Oreodaphne californica*.

UNIOLA.— *U. latifolia* is a handsome perennial grass from N. America, 2 to 3 feet high, with a large loose panicle bearing large flattened spikelets. A clump placed in rich garden soil gathers strength from year to year, and when well established is a beautiful object. *U. paniculata* is a taller kind which grows well upon the sand of the seashore, with Oat-like clusters which are very ornamental when dried.

UVULARIA (*Bellwort*). — Graceful perennials allied to Solomon's Seal, bearing yellow blossoms. There are four cultivated species, *chinensis*, *grandiflora*, *perfoliata*, and *sessilifolia*. Of these *grandiflora* is the finest, and the only one worth growing generally. It attains a height of 1 to 2 feet, and its numerous slender stems form a compact tuft, with flowers long and yellow, drooping gracefully, and pretty in early summer. It is a good peat border plant, thriving best in a moist peaty soil and in shade. N. America, except *chinensis*. Division.

VACCINIUM (*Whortleberry*).— A group of evergreen and summer-leafing shrubs allied to the Heath family, often beautiful in bloom, in fruit, and in autumn colour, yet neglected in gardens. The smaller kinds may be planted as edgings to beds of Rhododendrons and other peat-loving shrubs or as groups in the rock garden. They will not grow in lime soils, and are averse to removal, but are otherwise of easy culture, and increased by suckers, cuttings, or seed. Unless from a good nursery where they have been frequently transplanted, they must be well cut in after removal. Most kinds are best in partial shade and in moist or boggy soil, though some do well in drier and sunny places. Many kinds bear good fruit of agreeable acid flavour, known under various popular names and valued for tarts and preserves. Though now often classed apart under the name *Oxycoccus*, the true Cranberries are included here. The following are the best of the hardy kinds :—

V. ARCTOSTAPHYLOS (Bear's Grape).—A fine summer-leafing shrub of 6 to 8 feet, from the wooded mountains bordering the Black Sea. It bears blush-white flowers tinged with purple and reddish-purple berries, and likes a damp shady place.

V. BUXIFOLIA (Box-leaved Whortleberry).—A pretty evergreen shrub from the hills of Virginia, 6 to 8 inches high, and useful for edgings in a shady place.

V. CANADENSE (Velvet-leaf). — A low shrub of 1 to 2 feet, with white flowers tinged with green and red, coming just before the leaves, which are soft and downy. The abundant blue berries are covered with bloom and very sour, ripening late. The plants grow in well-drained but moist peaty soil, and give fine autumn colour.

V. CORYMBOSUM (American Blueberry). —A spreading shrub of 8 to 10 feet, charming with its small pink flowers in spring and vivid leaf-tints in autumn. The fruits are good and improve with cultivation, the less common white and pink varieties giving pretty colour effects. There are several forms—*amœnum*, with bright green downy leaves; and *pallidum*, in which they are pale and glaucous.

V. HIRSUTUM (Hairy Huckleberry).—A beautiful little shrub about a foot high, with long racemes of large greenish-white flowers, and dark blue hairy fruits of refined flavour. In autumn the leaves turn a showy brick-red colour, which endures for several weeks. The plant needs sun and a moist peaty soil.

V. MACROCARPUM (American Cranberry). —A dwarf evergreen trailing shrub with

its long loose stems covered with oval grey-green leaves, giving reddish-purple, bronze, and crimson tints in autumn. The rosy flowers appear in June, and the ripe fruit in September or October. There are many varieties, valued for their fruit. Thrives best in wet peat bogs.

V. MYRSENITES.—A cheerful evergreen shrub of 1 to 2 feet, with neat glossy-green leaves, clusters of bell-shaped white flowers touched with pink, and red berries, ripening to blue or black. Firm sandy peat, well-drained.

V. MYRTILLUS (Bilberry).—Native shrub growing on our moors and in shady woods. Its rigid stems, often only a few inches high, rise from a creeping root-stock, bearing neat leaves (red while young), small rosy flowers, and juicy blue berries of excellent flavour.

V. OVATUM.—An evergreen shrub of 3 to 8 feet, from the Pacific coast of North America, with thick glossy leaves, bright pink flowers, and handsome red fruits, ripening black and of good flavour. This makes a choice hedge plant, and is one of the most useful kinds of the genus.

V. OXYCOCCUS (Cranberry). — Trailing evergreen shrub found in our peat bogs from Sussex to Shetland. It has downy stems, scattered leaves, tiny red flowers, and dark red acid fruits.

V. PENNSYLVANICUM (Pennsylvania Blueberry).—A low shrub with oblong shining leaves, white or rosy flowers, and sweet bluish-black fruits, ripening early and much esteemed. The plant grows well in drier places than most Whortleberries, and the foliage is very effective in late autumn.

V. STAMINEUM (Deerberry). — A dense shrub of 2 feet, growing in dry woods of New England, with grey-green leaves, showy greenish-white or purple flowers, and pale green, round, or pear-shaped fruits of no value. It is a graceful garden shrub, thriving in shady places and easily grown. The flowers are peculiar in having no bud stage, coming wide open from the first.

V. ULIGINOSUM (Great Bilberry). — A native trailing shrub, found in mountain bogs and woody places of Scotland and the north of England. The flowers are small, pale pink, and the berries dark blue. A useful rock plant for cold wet soils.

V. VACILLANS (Pale Blueberry). — An erect-growing little shrub well adapted for dry and sandy places, with showy bell-shaped flowers contracted at the mouth, and borne in loose clusters; large blue berries, with a dense bloom and good flavour, ripening after the first earlies. A pretty plant, and worth growing for its fruit alone.

V. VITIS-IDÆA (Cowberry). — A native evergreen shrub with trailing stems, growing in the west from Devon and S. Wales, into Scotland, but absent from the S.E. of Britain. The box-like leaves are dark and shining, and the pretty pink flowers give place to crimson berries the size of red currants and equally useful, but only abundant on well-grown plants.

VALERIANA (*Valerian*). — Hardy perennial and mountain plants, of which the only one worth cultivating in a general way is the golden-leaved variety of *V. Phu*—an effective plant in spring, when its foliage is young; it is of neat tufted habit, and grows freely in any soil. A few dwarf alpine Valerians are sometimes grown, but they are not attractive. The flowers, too, are unpleasantly scented. Some of the larger species are pretty in rough places in moist land. *V. sambucifolia*, with flowers white and borne in large umbelliferous heads in July, is among the more effective things for grouping in the mixed border, rising nearly 6 feet high and being considerably more than that across. It is one of the most vigorous of perennials, and may be turned to good account in many ways, *e.g.*, the shrubbery border and the more open approaches to the woodland.

VANCOUVERIA.— *V. hexandra* is a most graceful and distinct plant, 10 to 18 inches high, with light fern-like leaves and slender spikes of pale flowers, and is a charming plant for the fernery and rock garden, best in peaty soil. It is apt to perish in some heavy soils, and thrives best in peaty ones. Vancouver. Division.

VENIDIUM.— *V. calendulaceum* is a beautiful half-hardy plant of dwarf spreading growth, with in summer showy yellow Marigold-like blossoms, 2 inches across and good for cutting. A good effect is gained by putting out several plants on a warm sunny border, or even on the top of a wall or a raised stone edging. Cuttings inserted in August root freely, and may be wintered in the greenhouse if kept fairly dry, otherwise they will damp off. Seeds germinate freely in a hot-bed in early spring. S. Africa.

VERATRUM (*White Hellebore*).— *V. album* is a handsome erect pyramidal perennial, 3½ to 5 feet high, with large plaited leaves and yellowish-white flowers in dense spikes on the top of the stem, forming a large panicle. The root is exceedingly poisonous. *V. nigrum* has more slender stems, nar-

rower leaves, and blackish-purple flowers. *V. viride* resembles *V. album*, except that its flowers are green. *S. californicum* has stout stems of 5 to 7 feet, with branched and tapering spikes of greenish-white bell-shaped flowers, followed by ornamental fruits. Division. These plants do best in moist half-shady places in the wild garden, rarely attaining their full beauty in dry sun-scorched soils. France.

VERBASCUM (*Mullein*).—These are stately plants, mostly of biennial duration, but the best are so handsome and long flowering as to be welcome in the garden, where in many cases once introduced they come year after year. The finer kinds merit good treatment and planting in bold groups.

V. CHAIXI (Nettle-leaved M.).—A perennial species 10 feet in height and very imposing when well grown. The bright

Verbascum olympicum

green leaves come up early; the flowers are large, yellow, with purple filaments, and last a long time. There is also a handsome variety with white flowers. It is a native of Europe.

V. CUPREUM.—A beautiful cross between *V. phœniceum* and *V. ovalifolium*, coming near the first-named in habit, hardy, a true perennial, with slender spikes 2 to 3 feet high of copper-coloured flowers from May to August. Other hybrids related to it are *V. hybridium*, Daisy Hill, a cross between *V. phœniceum* and *V. cupreum*, with short spikes of bright copper and orange-coloured flowers; and *Lewanika*, from the same cross, a taller plant with flowers of a peculiar shade of bronze-purple, produced during a long season.

V. NIGRUM.—Native of Britain, a true perennial with yellow flowers, but rarely more than 3 feet high. A handsome form of it, now grown in gardens, with pure white flowers, is a good plant. S. Europe.

V. OLYMPICUM.—One of the grandest of the family, strong flower-stems attaining 6 to 10 feet in height, the flowers rich yellow, and woolly leaves forming bold rosettes. A biennial from the Orient. *V. phœniceum* (Purple-leaved Mullein), one of the best perennials for borders in small gardens, is very variable, there being white, violet, lilac, rose, and purple-flowered varieties, flowering from May to August. S. Europe.

V. PHLOMOIDES.—Best of all Mulleins, 5 to 9 feet high according to the richness of soil, its yellow flowers continue nearly the whole season through. It will grow

Verbascum phlomoides.

in almost any soil, and should be grouped boldly among shrubs and the larger hardy plants, or naturalised in chalky or sandy banks. France and S. Europe.

V. PYRAMIDATUM (Pyramidal M.).—Has candelabrum-like branches of bright yellow

flowers, is a good plant, perennial on warm rich soils, and effective with its towering stems and huge rosettes of crisped leaves. Siberia.

Verbascum phœniceum.

Other Verbascums of interest are *macrurum, longifolium, virgatum, Blattaria, niveum, Boerhavi, sinuatum, orientale,* and Caledonia.

VERBENA.—Beautiful half-hardy trailing plants, which of late have not been popular in gardens, probably on account of the vermin that attacks them. Verbenas bloom profusely till late in the autumn, and if temporarily disfigured a burst of sunshine quickly restores their beauty. There are many fine varieties, English and foreign, and a pretty bed may be gained by mixing some of these together. Put out the plants about the end of May, and as they grow peg the shoots securely over the bed, keeping them well thinned. The best way of ensuring good cuttings for spring propagation is to put out a few reserve plants in spring, discourage flowering for a time, and root batches of cuttings in August and September. Give them a shift then into larger pots of rich soil. Soon afterwards set these store plants in a cool house or a pit from which frost is excluded.

Of late years Verbenas have been most successfully raised from seed sown about the middle of January in light soil in a warm frame or pit. Wintering the plants is a troublesome matter, but with seedlings it can be avoided, and they have vigour to resist the disease. Their wonderful diversity and brilliancy of colour and their many flowers combine to make them most effective plants. Seed is sold in colours which come remarkably true—scarlet, blue, white, carnation, flaked, and other forms. The scarlet kind is from the old Defiance, and its growth and freedom are marvellous.

V. CHAMÆDRIFOLIA (The Scarlet Verbena).—Of all the group this little species is the best. It grows but a few inches high, but spreads freely rooting as it goes. For the making of broad edgings to beds of other flowers it is a precious plant. The flowers are scarlet and borne in profusion, their intense colour being so conspicuous, and a few leaves or Bracken placed over their crowns in winter will bring them safely through, where there is any doubt of its hardiness.

V. VENOSA.—A perennial kind, 12 to 18 inches high, with purple-violet blossoms, is hardier than ordinary Verbenas, less apt to mildew, and cheerful even in drenching rains. It is easily wintered, its fleshy roots being stored thickly in boxes, and the young shoots rooted in spring. When the roots are lifted in autumn place them at once in boxes, which should be stored in a cool place until required for propagation. In borders they will remain for years if protected through the winter. Argentine.

VERNONIA (*Ironweed*). — Coarse N. Americans, of which some half-dozen are in cultivation. They bloom so late as to be scarcely worth growing, but *V. præalta* is a stately plant for the wild garden. Even if its flowers are injured or escape us, it may be grown in a ditch or open spot in a wood. Division.

VERONICA (*Speedwell*). — A large family very variable in structure and appearance. Many are trailing or carpet plants, with flowers mostly of a blue shade, but sometimes rose or dull white ; others are vigorous perennials with rigid flower-spikes of similar colours ; while a third group, mainly

from New Zealand, are evergreen shrubs ranging in height from a few inches to many feet, and most variable in character. It happens that in all these classes plants of the same species differ so much that their correct naming is difficult. Forming two such wholly distinct groups, we shall describe the shrubby New Zealand kinds and the herbaceous perennials in classes apart.

[Shrubby Speedwell.

With the exception of two or three kinds these are all from New Zealand, where they form a large part of the vegetation, completely covering the hillsides in many places. Few shrubs are more easily increased and grown than many of these shrubby Speedwells, and hence their wide use in our gardens, in spite of the fact that few are fully hardy inland, and that with every hard winter thousands perish. But it is so easy to hold cuttings in reserve, and young plants so quickly repair these losses, that occasional destruction is less serious than it would be with many other plants. The smaller kinds, drawn from greater elevations, are less tender than the leafy shrubs of the coast region; they carry small tough leaves, often Box-like, and, being hardy in all save the coldest winters, are for their distinct colour and neat growth valuable in the rock garden. They are somewhat more particular as to soil and position than the larger-leaved kinds, preferring ground that is open and well drained. These kinds merge into an alpine group found at a considerable elevation, at which likeness to their fellows is largely lost, the tiny trees (for such they are) appearing like Heaths, Conifers, or mosses. Though beautiful and of great interest, these little plants seldom thrive inland, though they flourish in seaside gardens.

At the seaside few plants are more useful than the large shrubby Veronicas, which fear neither winds nor salt spray. Cuttings of the young shoots root easily at almost any season, while many kinds seed freely and sow themselves in the border. The mountain kinds mostly flower in early summer, and are then attractive, but many of the larger kinds bloom best in autumn and winter, proving of value for cutting and for greenhouse decoration at a dull season, the colours of the newer named varieties being a great advance on the mauves and purples of past days.

The following are the most distinct of the shrubby kinds :—

V. AMPLEXICAULIS. — A low, erect, or semi-trailing shrub, its stout branches densely set with grey stem-clasping leaves. The white flowers appear as short dense spikes studded with blue anthers.

V. ANDERSONI.—Stout leafy shrub raised as a hybrid, and most useful near the sea, though tender even there in hard winters. The hills round Queenstown Harbour were once covered with this shrub—plants 8 feet high and 20 feet in diameter—yet all perished in one cold season. There are several varieties with flowers in shades of blue, lilac, and crimson, and one with variegated leaves.

V. BIDWILLII.—A little creeping shrub, spreading carpet-like beside the mountain streams of its own land, and changing into sheets of pink, white, or pale violet flowers in July. It is best in the upper part of the rock garden, where its neat leaves are attractive the year through, and unhurt in any ordinary winter.

V. CHATHAMICA.—Makes dense trailing cushions of glossy-green glaucous leaves, with close cone-shaped flower clusters of pale mauve or rosy-purple fading to white.

There is a distinct form called *minor*. Chatham Islands.

V. COLENSOI.—A variable little shrub running into several other kinds by intermediate forms. It is one of the best for the rock garden, hardy, with narrow stemless leaves, tapering towards the base, and dense clusters of pure white flowers from every leaf axil during June and July.

V. CUPRESSOIDES.—One of the strangest of the alpine kinds resembling Conifers. This is like a little Cypress, with slender, bright green branches rising erect from 2 to 4 feet, bearing pale violet flowers in small clusters at the tips of the shoots. It is fully hardy and grows best on light gritty soils of fair depth, overlaid with flat stones to retain moisture.

V. GLAUCO-CÆRULEA.—A choice hardy plant about a foot high, with neat oblong leaves barely half an inch long, bluish-grey with purple edges, and borne on dark purple stems. The bright blue flowers are beautiful, and it is one of the most charming of hardy shrubs for the rock garden. *V. canterburiensis* is like this, save in its lively shining green colour and its white flowers with blue anthers.

V. HECTORI.—Belongs to the alpine group from the mountain tops. Its stems are like green and polished whipcord, upon which the leaves appear as tiny scales. It is of slow growth, standing only a few inches high, while the white or rosy flowers are seldom seen even in its own land. It does best in gritty soil, and, though hardy, needs care as to soil and position. Cuttings of this kind root slowly and with difficulty.

V. KIRKII.—A tall, handsome shrub, fairly hardy near the sea, with fresh green leaves, narrowly lance-shaped, set on dark polished stems. The graceful spikes of white or pale mauve flowers, 4 to 8 inches long, appear only on large plants during early summer, and are highly useful for cutting.

V. LOGANIOIDES.—Belongs to the class of alpine conifer-like Veronicas, though the tiny leaves hug the stems less closely than in other kinds, and the clustered white flowers are so abundant in a good season as to hide all else.

V. LYALLI.—A slender trailing shrub of dense habit, less than a foot high, and rooting where the stems touch the soil. These are closely set with firm leathery leaves, variable as to shape and size, with serrate edges and more or less pointed. The flower-stalks start from every leaf-axil, bearing lax sprays of rather large pale mauve flowers, prettily veined. It is one of the most constant in flower, and ripens seed freely.

V. LYCOPODIOIDES.—A tiny creeping shrub hardly rising above the ground, its angular stems sheeted in dark green scale-like leaves, and like a club moss. It fails in the south, but is a pretty rock plant for N. Britain, flowering freely in a good year.

V. MACRANTHA. — Bears the largest flowers, and is one of the most beautiful of the group, covering large tracts of its native mountains at an elevation of 3000 to 6000 feet. It is a rigid little shrub about 2 feet high, with bright green leaves toothed at the edges and many pure white flowers an inch across.

V. PINGUIFOLIA.—Of dense growth, it nestles happily amongst rock garden plants, its intense glaucous colour effective. The white flowers with purple stamens are borne in crowded spikes, and never fail to appear in early summer. This kind and its immediate allies are among the hardiest of shrubby Veronicas. *V. decumbens* comes near this, and is of

Veronica pinguifolia.

prostrate habit with black polished stems, bright green instead of glaucous leaves, and larger flowers with rosy anthers.

V. SALICIFOLIA.—A fast-growing shrub of graceful habit, with narrow glossy leaves 2 to 6 inches long, and bluish-purple or white flowers in slender tapering spikes. It is not only most variable as a species, with many wild forms, but has been crossed freely with other kinds. *Vs. macrocarpa* and *parviflora* come so near this as to seem only extreme forms of it. The variety with pure white flowers is the best, and one of the most charming of seaside shrubs, tender inland.

V. SPECIOSA.—The best known of shrubby Veronicas, of rapid growth, with leafy stems, a freely branching habit, and showy mauve or purple flowers fading to white. The early forms, with their crude colours, are now replaced by named varieties due to crossing and selection, and among the most beautiful and easily grown of flowering shrubs for autumn and winter.

NAMED HYBRIDS.—All these have come from three or four kinds—*Salicifolia, elliptica, speciosa*—crossed, re-crossed, and selected, until the precise parentage has been lost. *V. Andersoni* was one of the earliest, and other old kinds are Blue Gem, an old favourite of compact growth and nearly always in bloom; Celestial, light blue; Imperial, crimson-purple; Jardin Fleuri, deep carmine; Mme. Chrétien Merveille, purple; Marie Antoinette, pink; Purple Queen, rich purple, the flowers slightly fragrant; Reine des Bleues, deep blue; and Ville de Hyères, a very hardy kind with crimson flowers. There are other kinds with variegated foliage, beside the yellow-leaved form of *V. Andersoni*, the best being Arc-en-ciel, with striped foliage and deep red flowers; and Silver Star, a neat dwarf shrub in which the leaves pass from yellow to silvery-white, effective as an edging in warm soils. The newer kinds are Autumn Glory, a bushy plant with small purplish leaves and violet-blue flowers in autumn and winter; Bolide, with red flowers and a good habit; Conquête, white and mauve; Coquette, very long pale lilac spikes; Daimant, crimson-purple; Evaline, soft pink with prominent white anthers; Fleur de Roses, white; *Gauntletti*, with very long spikes of salmon-pink; La Seduisante, dark magenta-purple with white anthers; Le Merveilleux, bright mauve; *Meldensis*, light purple; Mont Blanc, pure white; Mont Rosa, rosy-pink; *Newryensis*, rosy-grey flowers in spring; Queen of Whites, white tinged mauve; Redruth, rich red; Snowflake, long spikes of pure white; Valiere, bright violet with white anthers; and Vulcan, rich claret-red with reddish-green foliage.

Among dwarfer kinds, *V. verbenacea, V. fruticulosa, V. alpina, V. aphylla, V. nummularia, V. Guthrieana, V. austriaca, V. ineisa, V. bellidioides*, and *V. Dabneyi* are suited for a rock garden. The pink variety of *V. officinalis* forms dense patches of pink blossoms, sometimes raised 3 inches above the ground. These mentioned are so hardy that they may be divided or moved at all seasons. Such kinds as *V. longifolia* need frequent division to prevent crowding. Most kinds ripen and sow their own seed, and the seedlings vary in colour and form.

V. GENTIANOIDES.—One of the earliest of the Speedwells, and flowers in May. Three forms are common—the type with grey flowers, a variety with white flowers and bright glossy leaves like the Gentianella, and another with handsome variegated leaves. All are worth growing.

V. INCANA.—Also called *V. candida*, is a dwarf plant with silvery leaves, and dark rich purple flowers. It is used with good effect in bedding, its grey leaves being a contrast to most other foliage. A form of this named *elatior* has spikes of twice the normal length. *V. neglecta* is similar but inferior. Division.

V. PARVIFLORA is a free growing Speedwell, reaching from 6 to 8 feet in height when well grown, and when laden with flowers in early autumn it is worthy of a place.

V. PECTINATA.—A pretty trailing kind, with serrated downy leaves and blue or rosy flowers. It is well suited for dry spots in the rock garden, the margins of borders, and other places.

V. REPENS.—Clothes the soil with a soft carpet of bright green foliage, covered in spring with pale bluish flowers. It thrives well on moderately dry soil, but delights in moist corners of the rock garden. There is a variety with white flowers.

V. SATUREIOIDES.—One of the best of the Speedwells, though somewhat rare, with flowers about the size of those of *V. saxatilis*, of the same intense blue, and in abundant upright racemes.

V. SAXATILIS.—A native of alpine rocks in various parts of Europe, and also a few places in Scotland. It forms neat trailing tufts 6 or 8 inches high, the flowers little more than ½ inch across, of a pretty blue, striped with violet, and with a narrow but decided ring of crimson near the bottom of the cup, the base of which is pure white.

V. SUBSESSILIS.—Best of the hardy Veronicas, and flourishes in spite of spring frosts and cold summers. Its large dense spikes of deep purple-blue flowers are effective, and it should always have a position among the choicest hardy flowers in a good deep loamy soil and open situation. Japan. Readily increased by cuttings in spring.

V. TAURICA.—A dwarf, wiry, and almost woody species from Tauria, forming neat dark green tufts, under 3 inches high; its fine Gentian-blue flowers borne abundantly. It is, perhaps, the neatest kind for forming spreading tufts, in level spots of the rock garden, or drooping from chinks,

and for association with the dwarfest alpine plants. Division or cuttings.

V. TEUCRIUM.—A Continental plant, which forms spreading masses from 8 to 12 inches high, covered in early summer with flowers of an intense blue, at first in dense racemes which lengthen progressively. It is excellent for the rock garden or borders, and grows freely in any soil. Seeds or division.

Though a very great genus in the world flora Veronicas have not nearly so much importance for the garden. Many of the New Zealand kinds are tender, and of the European or northern kinds rather a few have much beauty, except, perhaps, the silvery ones, which come well into the flower garden.

VESICARIA (*Bladder Pea*).—Hardy evergreen perennials, of which *V. græca* is the handsomest, and bears a strong resemblance to the better-known *V. utriculata*, long cultivated in gardens. The bright yellow flowers open in succession for a length of several inches on each stem. Rocky places in South Europe. Cuttings or seed. Both kinds flourish in dryish soil, on dry sunny parts of the rock garden.

VIBURNUM (*Guelder Rose*).—Handsome and vigorous shrubs of northern regions, beautiful in berry as well as flower, and, with few exceptions, of the easiest cultivation. They simply need a fair soil and plenty of moisture. Increase by cuttings and layers or seed—the best way. Some kinds are not worth growing, being either too much like others or tender and delicate with us. Those admitted here are distinct and of value, and it is best to limit ourselves to them.

V. ACERIFOLIUM.—A shrub of 4 to 6 feet, from the mountains of New England, and distinct in its broad and glossy three-lobed leaves. The flowers are not showy, but give place to oval red berries, blackish-purple when ripe. The leaves turn a fine crimson-purple in autumn, and the plant will grow in dry rocky soils.

V. CARLESII.—A charming Japanese shrub of rather loose habit, with roundish leaves, silvery on the under side and greyish-green above from their coating of fine hairs. The flowers expand as rounded clusters of good size in the latter part of April, though the buds are formed early the previous autumn. They are pink in bud, opening white and retaining a flush on the outside; they are finely fragrant and last a long time. Though uninjured at Kew during recent winters, the plant is still on trial as to its hardiness in this country, and might possibly lose its buds in a severe winter. Cuttings.

V. CASSINOIDES.—Of the American Viburnums, one of the best, growing some 6 feet high, with thick leathery leaves, 3 to 4 inches long, and yellowish white flowers, during the early part of June, in flat cymes 4 to 5 inches across, and handsome fruit, the berries changing first to rose colour and finally to bluish-black. As they do not ripen simultaneously, fruits of both these colours, as well as green ones, occur on a cluster at the same time. N. and Arctic America.

C. COTINIFOLIUM.—A spreading shrub or low tree of 20 feet, found high on the Himalayas, yet so tender as to need shelter or a place on a warm wall during our winters. Its young leaves are downy but wear smooth, remaining grey and woolly beneath, ovate in shape, and 4½ inches long by 2½ wide. The flower-clusters appear in May and June upon short woolly stalks, the small white flowers flushed with pink, and succeeded by bright scarlet berries. A beautiful shrub for warm districts.

V. DAHURICUM.—A spreading shrub of 5 to 8 feet, with grey stems and small woolly leaves. It is spread from Dahuria to W. China, and is hardy, thriving in light moist humus, and covered during early summer with white funnel-shaped flowers in small clusters, followed by fragrant oval berries, at first red, but black and sweet when ripe.

V. DAVIDII.—Of little flower beauty, this distinct species is valuable for its evergreen character, hardiness, and the mound-like cushions formed by its handsome leathery foliage. It is 1 to 2 feet high, and often the same across, attributes which fit it well for certain positions in the rock garden. Its dull white flowers are in stiff terminal heads; the fruits blue. W. China.

V. DENTATUM.—A bushy shrub of 15 feet, with ovate leaves on slender stems and abundant white flowers in June and July, when the shrub is at its best. These give place to small rounded berries of a bright dark blue, covered with a fine bloom. There are two varieties, one with finely variegated leaves, and *lævigatum*, which flowers later and is larger in leaf. They are handsome shrubs for damp ground. N. America.

V. DILATATUM.—A shapely shrub of erect growth, brought long ago from the East and fully hardy, yet almost unknown in our gardens. Its bright green leaves resemble those of the common Hazel, and its showy heads of pure white flowers, appearing in May and June, sometimes measure 6 inches across. These give place to scarlet berries, hanging for many weeks,

and making this one of the most handsome of hardy shrubs.

V. FURCATUM.—A handsome species, a native of N. Japan at low levels, and of the mountains of the more southern portions, and one of the finest of shrubs for autumn colour. The large and broad leaves turn brilliant scarlet and reddish-purple before they fall, and it grows 12 to 15 feet in height. Japan.

V. HENRYI.—A lax-habited hardy evergreen shrub from C. China, attaining to 10 feet or so high. It is both distinct and choice, and of high fruit ornament in autumn, when the pretty panicles of coral-red and black fruits are coloured. The smooth lanceolate leaves are shining green; flowers white.

V. LANTANA (Wayfaring Tree).—One of the two kinds native of Britain, and frequent in hedgerows and copses, especially in chalk or limestone soils. At its best it is almost a small tree, 12 to 15 feet high. The flowers are white during May and June, on flat clusters at the ends of the branches. The fruit is red at first, ultimately black, and the leaves often die off a rich red. There is a variegated form of no particular value.

V. LANTANOIDES (Hobble Bush or Moosewood).—A N. American kind, a large shrub, the leaves are almost round, and whilst averaging 3 to 4 inches across are sometimes over 6 inches. The truss has its outer flowers sterile, and they are 1 inch or more in diameter; both they and the smaller ones that fill the centre are white. The fruit is at first coral-red, afterwards dark purple or almost black, and the foliage dies off a rich claret.

V. LENTAGO. — A large bush or low tree of 30 feet, common throughout N. America in moist woods. Its broadly-oval pointed leaves are of deep shining green, changing in autumn to varied tints of purple, red, and yellow. The white flowers appear in stemless clusters during May and June, followed by large black berries, bluish with a delicate bloom, pleasant to the taste, and hanging for several months. It is sometimes grown as a standard with good effect. A variety in which the flower-heads have short stems is known as *subpedunculatum*. Allied to this is *V. prunifolium*, which also attains large size in dry stony places. Its leaves are Plum-like and shining, with saw-like edges, and the flowers pure white, fragrant, with prominent yellow-tipped stamens. The berries are bluish-black with a grey bloom.

V. MACROCEPHALUM (Great Snowball Bush).—A Chinese species, not very hardy, with enormous flower clusters. In some places it thrives against a wall, and in the south as a bush. Fortune saw it 20 feet high in Chusan. The wild plant from which it has been derived is in cultivation, and is known as *V. Keteleeri*. This has the centre of the truss (which is much flatter than in *V. macrocephalum*) filled with fertile flowers, the outer ones only being sterile.

V. ODORATISSIMUM.—As a rule, when grown out of doors this is given a place on a wall, as it is not hardy in all winters. It is evergreen, foliage is handsome, each leaf 3 to 6 inches long, leathery, and of a lustrous dark green. The flowers are in corymbs, and although small and dull white, are charming for their fragrance. China. Syn., *V. Awafuki*.

V. OPULUS (Guelder Rose).—A handsome and often rather tall native bush, frequent in the underwoods of many districts. In the wild form the outer flowers only of the cyme are sterile, and these are about three-quarters of an inch across; the centre is filled with small perfect flowers. In autumn this plant is valued for its clusters of fine red fruits and the colour of its leaves. Of its best known varieties is the var. *Sterile* (Common Guelder Rose). This has few or no perfect flowers, the whole truss consisting of the more showy barren ones, which makes it much more rounded, and, together with the pure whiteness of the flowers, has led to its being popularly known as the Snowball Tree. A yellow-fruited kind differs from the type in the fruits being yellow instead of red when ripe.

V. PLICATUM (Japanese Guelder Rose).—A very sturdy, robust-flowering shrub. I have seen young, newly-rooted plants

Viburnum plicatum.

injured the first year after being put out, but when once established it will stand any frost up to 30° without lasting injury. It is a shrub of neat yet graceful habit, well clothed with dark green, rather plaited leaves. It bears its fine trusses, 3 inches or more across, on short branches springing from the whole length of the previous year's growth, thus forming fine sprays of pure white blossom. Syn., *V. Tomentosum* var.

V. RHYTIDOPHYLLUM.—Perhaps the

most distinguished and ornamental evergreen of the whole race. The leaves, which are broadly lanceolate, are about 9 inches in length and 2½ inches broad, dark green above, and felted with dim-coloured tomentum below. The vigorous growths are terminated by corymbs of yellowish-white flowers, which in September give place to huge clusters of fruits, at first red and finally glossy black. It attains 8 to 10 feet, and as much through, and is handsome in isolation. C. and W. China.

V. SIEBOLDI.—A handsome and distinct evergreen bush, with large glossy leaves and large heads of white flowers, in May and June in Southern England. A promising kind, at least for districts where our evergreens usually escape the effects of hard winters.

V. TINUS (Laurustinus).—A beautiful and fragrant evergreen, thriving over a large area of Great Britain and Ireland, especially near the sea and on warm and gravelly soil, though now and then injured by severe winters even in the country south of London. In sunny positions it usually flowers freely, but not in shade, commencing to bloom in December, it will continue till the end of March. Although all its flowers are perfect, it does not ripen fruit regularly, but fruits occasionally occur, the colour being a dark blue. There are several varieties of the Laurustinus, one of which, the var. *lucidum*, has fine large leaves, shining and almost smooth on both sides, and the flowers and flower-trusses also are larger. Laurustinus can be struck from cuttings.

V. WRIGHTII.—An erect shrub from the mountains of N. Japan, and hardy in Britain, though as yet hardly known. Of spreading habit, the leaves are large, thick, and rounded, coarsely toothed, and finely tinted with scarlet and ruddy-purple on fading, and its large fruits are brilliant in their early stages. It promises to be one of the best for autumn effect.

VICIA (*Vetch*). — Perennial and annual herbs, several of which are native, and worthy of more care than they often get. They grow freely in almost any soil, and are raised from seed and increased by careful division. The following are the most useful species :—

V. ARGENTEA (Silvery Vetch).—Has silvery leaves and prostrate habit, is without tendrils, about 8 inches high, spreading freely in light soil ; the rather large whitish flowers are veined with violet in the upper, and spotted with purple in the lower, part. It is not a brilliant plant in flower, but the foliage makes it worthy of a place in the rock garden. Pyrenees. Division or seed.

V. CRACCA (Purple Vetch).—A pretty native plant common in many districts, wreathing hedgerows and bushy tufts with its graceful shoots and bluish-purple flowers. In many districts it plants itself so prettily that there is no need to cultivate it. It is perennial, and should be kept in the rougher parts of the garden.

V. ONOBRYCHUS.—A lovely Vetch bearing long and handsome racemes of flower during summer, when it brightens the Alps of France and Italy, giving an effect like that of some of the purple Australian Pea-flowers. It is best grouped in the rock garden or on a grassy bank.

V. PYRENAICA.—A graceful perennial of dwarf habit, with abundant rich purple flowers of large size from April to June. It is one of the prettiest of Pea-flowered rock plants, its soft green, finely-cut leaves making a cheerful groundwork, drooping from rocky shelves or draping old walls. It spreads freely by underground runners, but is easily kept in bounds and not at all troublesome. Pyrenees.

V. SYLVATICA (Wood Vetch). — This pretty native plant, with trailing stems of 5 or 6 feet, threads its way through shrubs and hedges, displaying abundant creamy-white flowers streaked with blue or purple, and bright pea-green leaves. Where unknown as a wild plant, it is well worth a place in the woodland garden, and is easily raised from seed.

VILLARSIA (*Yellow Buckbean*).—*V. nymphæoides* is a pretty British water plant, with leaves like a Water Lily, but smaller, and floating. Its yellow flowers are borne singly, and last through the summer. Division.

The following two kinds I have at Gravetye, but am not sure if they are as hardy as the common wild kind :—

V. RENIFORMIS.—A graceful water plant, a welcome addition for fountain basins and pools without rush of water. It may even be useful in open water, like our native *Villarsia*.

V. OVATA.—Quite distinct from *V. reniformis*, has the same beautifully-fringed flowers, and is most welcome for fountain basins.

VINCA (*Periwinkle*). — Perennial trailers, hardy and vigorous anywhere. The well-known *V. major* (common Periwinkle) is useful for banks or masses of rootwork, and also for rocky places or by wood walks. The lesser Periwinkle (*V. minor*) is much smaller and useful for the same positions ; it also has several varieties worth growing : a white-flowered one (*V. m. alba*), a reddish one, and one or two double and variegated forms. *V. herbacea* is less frequently seen than our common Periwinkles, but is more

worthy of culture on rocks, as it is not rampant in habit. It is a native of Hungary, flowers in spring and early summer, and its stems die down every year. *V. acutiloba* is a distinct kind bearing its delicate mauve blossoms in autumn and thriving on sunny banks and warm borders.

VIOLA (*Violet*).—In nature it is a very large family, some kinds being among the most ornamental plants that bedeck the alpine turf. Even the common Violet may also be claimed as an alpine plant, for it wanders along hedgerow and hillside, along copses and thin woods, all the way to Sweden. From the Violet our world of wild flowers derives wondrous beauty and delicate fragrance; no family has given us anything more precious than the garden Pansies and the various kinds of large, showy, sweet-scented Violets. Far above the faint blue carpets of the various scentless wild Violets in our woods and heaths, our thickets and bogs—above the miniature Pansies that find their home among our lowland field-weeds; far above the larger Pansy-like Violas (varieties of *V. lutea*) which flower so richly in the mountain pastures of Northern England and even on the tops of stone walls; and above the large, free-growing Violets of the American heaths and thickets, we have true alpine Violets, such as the yellow two-flowered Violet (*V. biflora*), and large blue Violets such as *V. calcarata* and *V. cornuta*. They grow in a turf of high alpine plants not more than an inch or so in height. The leaves do not show above the densely-matted turf, but the flowers start up, waving everywhere thousands of little banners. Violets are of the easiest culture; even the highest alpine kinds thrive with little care, and *V. cornuta* and *V. calcarata*, of the Alps and Pyrenees, thrive even more freely than in their native uplands, the foliage and the stems being stronger. Slow-growing compact kinds, like the American Bird's-foot Violet, enjoy, from their stature and their slowness of growth, a position in the rock garden, or in the choice border, and they are of easy culture in moist sandy soil. Violets of all kinds are easily increased by cuttings from stout short runners. The following are among the best kinds:—

V. BIFLORA (Two-flowered Yellow V.).—This bright little Violet is a lovely ornament on the Alps, where it carpets chinks between the moist rocks. It even crawls under great boulders and rocks, and lines shallow caves with its fresh verdure and its little golden stars, and is useful in rock gardens where rude steps of stone give winding pathways. It will run through every chink between the steps. Europe, N. Asia, and America.

V. CALCARATA (Spurred V.).—A pretty plant of the Alps, usually found in high situations, amidst dwarf flowers, and is so plentiful that its large purple flowers make sheets of colour. It is as charming in the rock garden as in its native wilds, but not so free as the Horned Pansy. There are white, pale lilac, and yellow varieties, the last (*flava*) being the same as *V. Zoysi*.

V. CORNUTA (Horned Pansy).—A mountain Pansy, with sweet-scented pale blue or mauve flowers of great beauty. For a while superseded by the many charming tufted Pansies, the turn of the Horned Pansy has come again, and of late years named varieties with some finely shaded flowers have been raised, the colours passing through blue and purple to rosy-lilac and white. Pyrenees. Division, cuttings, or seeds.

V. GRACILIS.—A remarkably pretty dwarf species, never failing to produce in spring an abundance of deep purple blossoms in dense tufts. It is hardy in light soil. Mount Olympus. A pretty form of this, *V. gracilis valderia*, comes from the Tyrol; its violet-blue flowers are flecked with darker and with paler spots.

V. LUTEA (Mountain V.).—The yellow form of this Violet is very neat and compact, 2 to 6 inches high. From April onwards it yields abundant flowers of a rich and handsome yellow, the three lower petals being striped with thin black lines. A large flowered garden form is named Gem.

V. MUNBYANA.—One of the prettiest of Violets, abundant in flower, robust in growth, and hardy. It begins to bloom about the end of February, attaining its greatest beauty in May. The deep purple-blue flowers resemble those of *V. cornuta*; and there is also a yellow variety. Spain and Algeria.

V. ODORATA (Sweet V.).—This well-known plant is widely spread over Europe and Russian Asia, including Britain, while it is grown in almost every garden, and flowers of it in enormous quantities are sold in our cities. Its fragrance distinguishes it from other Violets. It may be grown as carpets for open groves or the fringes of woods, hedges, or banks. Instead of being confined to a bed it should fringe rock gardens or ferneries. In such positions it requires little care. It will grow in almost any soil, but best on free sandy loam. It is well to naturalise the plant on sunny banks, fringes of woods,

and the warmer sides of bushy places to encourage early bloom.

In the open Sweet Violets thrive on moderately heavy rich soil; should the soil be light and gravelly, some stiff material and plenty of manure must be added to it; poor and hard clay will gain by adding sharp gritty matter and abundance of rotten manure. Violets require shelter, but not that of a wall, and in enclosed gardens they are seldom plants in different positions to ensure a long season of bloom. On south borders Violets dwindle, but a few roots on sunny banks will give some early pickings.

The insects that trouble the Violet most are green-fly and red-spider. The first is generally the result of a close unhealthy atmosphere, and is easily got rid of by gentle smokings. Red-spider is induced by strong sun and by dry soil; hand-dusting with sulphur

Viola pedata (Bird's-foot Violet).

healthy. Their natural shelter is a hedgerow, allowing such currents of pure air as are essential for keeping down red-spider and for healthy foliage. They grow well on the shady side of a Hornbeam hedge, if somewhat naked at bottom, so as to allow the sun to shine on their leaves early in spring, and afford a partial shade in summer. When the soil is deep and rich, however, Violets will bear sunshine, and it is well to have a few is the best remedy, but it is easy to prevent its occurrence by free sprinkling.

The varieties of the Violet are very numerous. We have the single white and the single rose, the double white, the Czar (a very large and sweet variety), the Queen of Violets, Admiral Avellan, La Grosse Bleue, La France, California, Princess of Wales, Luxonne, Belle de Chatenay, White Czar, Lady Hume Campbell, Marie Louise, Victoria

Regina, Wellsiana, and the perpetual blooming Violet—well known in France as La Violette des Quatre Saisons. This differs slightly from the Sweet Violet, but is valuable for its long season; it is the variety used by the cultivators round Paris. The double white, or, as it becomes in the open air, the rosy-white Belle de Chatenay, has a robust habit. Though not so pure as the old double white kind, it blooms more freely, and is neater. The Neapolitan Violet is tender and needs protection.

V. PEDATA (Bird's-foot V.).—The most beautiful of the American Violets, with handsome flowers 1 inch across, pale or deep lilac, purple or blue, the two upper petals being sometimes velvety and deep violet like the petals of a Pansy. The variety *bicolor* is a pretty form, its flowers larger, and the petals arranged like those of a Pansy, the two upper ones rich velvety purple, and the three lower delicate blush.

V. RENIFORMIS (New Holland V.).—This mantles the ground with a mass of small leaves and slender, creeping stems, and bears throughout the summer blue and white flowers of exquisite beauty,

Viola reniformis (New Holland Violet).

about 2 inches high. It is pretty for a bed of peat or very light earth, where taller plants are put out in a scattered way for a time; but, being small and delicate, it should not be used with coarse plants. It must be treated like a tender bedding plant—taken up or propagated in autumn, and put out in May or June. Australia. Division. Syn., *Erpetion*.

V. ROTHOMAGENSIS (Rouen V.).—A handsome plant, dwarf, and with low, creeping stems, which bear in spring numerous purple and white blossoms. It is a free grower, but, being a native of Sicily, is not so hardy as some Violets, and should be grown in a light soil and a warm border.

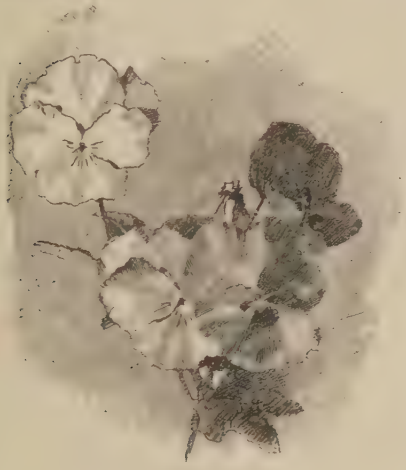
V. TRICOLOR (Heart's-ease).—The Pansy is usually classed under the head of *V. tricolor*, though it is probably descended from *V. altaica*—to which many Pansies seem nearly allied. But our Pansies are so numerous, so varied, and, withal, so distinct from any wild Violet, that little can be traced of their origin. Of one thing we may be certain—the parents of this precious race were mountaineers. Only alpine plants could give rise to such rich colour and such wealth of bloom. It may be treated as an annual, a biennial, or a perennial, according to climate, position, and soil. One of the commonest of weeds in Scotland, the wild *V. lutea* may be grown in the south of England if sheltered from the midday sun.

The fancy Pansies are remarkable for the strange variety of their colours and the unusual size of the blooms. The seed should be sown in July or August, in pans of light, leafy soil, such as sand, leaf-mould, and mould from rotted turf, and placed in a cool, shady place.

As it is rarely convenient to plant the seedlings at once where they are to bloom, they should be placed in pots plunged in a cool place in the open ground, and put out in time to get established before winter. They stand the winter well, and the only danger lies in heavy rain or sleet succeeded by sharp frosts.

Self-coloured Pansies, which I call tufted Pansies, are among the most beautiful things one can cultivate in a cool rainy country like ours. In the north, among mountains and hills, they are at their best; in the south, with care, they are lovely, and when other flowers may be beaten to pieces by storm, they are better than ever, only one must take care to change the ground now and then, because certain worms are fond of the plants and get into it. One often loses them also in a hot summer, so that it is always best to renew the stock from some cool northern nursery and increase them as much as possible from autumn cuttings. If we have any young plants we should plant in autumn or in spring when the trade stocks are mostly to be had. Plants of this "tufted" habit are often a mass of delicate rootlets even above the ground, so that they are easily increased; hence when older Pansies die after flowering, those crossed with the alpine

species remain, like true perennials, and are easily increased. The term Pansies is a good one in all ways. Without an English name, we shall always have confusion with the Latin name for wild species. To all of these belongs the old Latin name of the genus *Viola*. It is now agreed by botanists that all cross-bred garden plants — including tufted Pansies — should have popular English and not Latin names.



A Tufted Pansy.

These are the flowers hitherto generally known as Violas and bedding Pansies, and Dr Stuart, who has raised some of the best of them, says: "Botanically, Violets, Pansies, and Heart's-ease are all the same. Tufted Pansies are crosses from the garden Pansy and *Viola cornuta*, the latter being the seed-bearer. Pollen from *V. cornuta* applied to the Pansy produces a common enough form of bedding Pansy—never the tufty root-growth obtained when the cross is the other way. I have proved this by actual hand-crossing. Most strains of tufted Pansies are bred the wrong way, and lack the tufty root which makes the Violetta strain perennial."

Although we like the colours simple and pure, there are other pretty ones of a different kind, such as Accushla, Blue Cloud, Columbine, Countess of Kintore, Duchess of Fife, Hector Macdonald, and Skylark. In the south, however, they are uncertain, liable to vary in colour, and not so good as the selfs. Some kinds, like Violetta, are white, running off to delicate bluish or lilac hues. These delightful plants are so easily raised and crossed that each garden might raise its own kinds, so as to have as much variety as possible. They love a light and cool soil. In northern districts they are more at home than in the south, where special treatment is necessary to bring them to perfection.

For early spring flowering the cuttings should be rooted in July or August and planted out in October. They commence blooming early in April. In heavy soils liable to crack with drought use abundance of leaf-soil, burnt ashes from the rubbish fires, and the like, to bring them into order. Also select a dry time for digging, working in the above with plenty of short manure from an old Mushroom bed, and scattering an inch or so on the surface for the roots at planting time. Cuttings are better than divisions, particularly if they are made of the young shoots stripped from the old stool with a heel attached. To yield a supply of these cuttings a reserve batch of plants is necessary. About the second week in June cut them back to within 2 inches of the soil. A month afterwards they will be bristling with young shoots. When 3 inches long, scatter some fine soil and leaf-mould among the young growths, and keep well watered for a fortnight, by which time the majority will be making roots freely. A fortnight later they will be ready for planting in nursery-beds in a shady spot and in good soil. As growth is renewed, pinch out the top of each to encourage the quicker formation of shoots at the base. By October there will be some grand plants for putting into their permanent quarters, full of youth and vigour that will produce masses of flowers in due season.

VISCARIA.— *V. oculata*, a showy and beautiful hardy annual from South Europe, is well suited for a border. Seed should be sown in spring or autumn, and the seedlings thinned out when large enough. The plant is 6 or 8 inches high, and bears a profusion of rose-coloured blossoms with a dark centre. The varieties *cardinalis* (bright crimson-purple), *cærulea* (bluish), *alba* (white), *Dunnetti* (rose), *splendens* (scarlet), *picta elegans* (crimson-purple, edged with white), and a dwarf variety, *nana*, about 9 inches high, are desirable.

VISCUM ALBUM (*Mistletoe*).—This on trees is often welcome in the pleasure ground or orchard, and is not without beauty of colour, but where abundant it is injurious, being a true parasite which thrives at the expense of its victim. It grows on many trees, both evergreen and summer-leafing—orchard trees, Limes, Poplars, Elms, Willows, Hornbeam, Beech, Acacia, Horse-chestnut, Firs—rarely on the Oak in Britain. Where the plant is wild the thrushes spread it about by wiping the seeds off their bills on the bark, and where plentiful it is very injurious to fruit trees and timber. As to the best way of increasing this plant, Mr F. W. Burbidge wrote :—

"I find growth of the seeds certain if they are placed on clean, fresh, smooth bark in April or May, and then covered with one thickness of black muslin or lawn, so that birds do not peck them away, as they do if unprotected. Many make the mistake of putting on the seeds at or about Christmas-time before they have ripened enough to grow. Do not cut slits in the bark; the best way is simply to apply it to the clean bark only."

VITEX (*Chaste Tree*).—*V. Agnus-castus* is a graceful shrub, with divided leaves, and in late summer clusters of small pale lilac flowers. It grows 6 to 10 feet high against a wall, but even thus protected is liable to be killed during a severe winter. I have never seen it flower well except in Austria and Italy. S. Europe.

VITIS (*Vine*). — Woody climbing shrubs of much interest and garden value, owing to their grace and handsome foliage, which affords the richest of colours—yellows, purples, and crimsons. Whilst some are valuable for the walls of houses, others may be used for covering arbours, pergolas, the pillars of verandahs, old tree stumps, or sloping banks. In the case of the stronger, taller-growing species they may be made to clamber over living trees. Where space is limited they can be kept small by pruning, but the best effects are obtained where they can ramble without hindrance. Most kinds can be increased by cuttings or by single "eyes" treated as in the Grape Vine, though some can only be raised by seeds. Those that refuse to root from cuttings can sometimes be layered. Graftings should be a last resource. It is worth noting that some of the early kinds of European Vine ripen well in some of our warm valleys, all the more so if pruned and trained as in France, but even without that they sometimes fruit very well. Vines of the north of France, such as *Le Chasselas, de Fontainebleau* and *La Madeleine*, may be tried for this with any others.

In the following list *Ampelopsis* and *Cissus* are merged in *Vitis*.

V. ÆSTIVALIS (Summer Grape). — The leaves are 4 to 6 inches across, a deep green colour when old, but in a young state covered on the lower surface with a reddish down. The berries are small—about the size of black currants—acid but edible. New England to Florida and westwards.

V. ARMATA. — Noble Vine from C. China, with large heart-shaped or nearly triangular bronze-green leaves set upon spiny stems, by means of which the plant climbs. In autumn the foliage assumes fine tints of crimson-purple and yellow, and it reaches a height of 10 or more feet in three years from the seed.

V. CALIFORNICA (Californian V.).—This is the best of the American Grape Vines (excluding the *Ampelopsis* section) for colour in autumn, and it is one of the strongest growers, climbing over lofty trees. Its leaves, which turn a deep crimson in autumn, are rounded and covered with down.

V. COIGNETIÆ (Crimson Glory V.).—A noble hardy Vine from the mountain forests of the Island of Yezzo, N. Japan, where it covers the trees from base to summit with a gorgeous mantle in autumn. It comes near *V. Labrusca* in general appearance, but is more vigorous, growing at a great pace when fairly established, and displaying a profusion of leathery dark-green leaves with several lobe-like points, and coated beneath with a thick felt-like down which varies in colour from rusty-brown to yellow or nearly white. Their autumn tinting is beautiful, especially in a dry season and when the plant is not overfed. Increase by seed or layers.

V. CORDIFOLIA (Frost Grape).—A vigorous Vine with thin, three-lobed leaves, measuring 3 to 6 inches in diameter, the lobes ending in a long, fine point. The berries are black and only eatable after frost. A moisture-loving Vine, affecting in a wild state the banks of streams. New England to Nebraska and southwards.

V. FLEXUOSA.—A variable species from China and Japan, with small rounded leaves, toothed at the edges, and a velvet surface, remaining fresh till late in November. Among its many forms is *major*, with much larger dark green leaves, either simple or three-lobed. The

early leaves and shoots are a pretty pale crimson, and before falling in autumn the foliage turns purple and blood-red.

V. HENRYANA.—Discovered in China by Dr Henry, and one of the most beautiful of Vines. The deep green leaves are cut into five leaflets, threaded by silvery ribs and veins, the effect being particularly rich in autumn when they turn a deep crimson-purple. Though less vigorous than most wild Vines, it is one of the most graceful and distinct of the group, and its stems cling to the wall without nailing.

shows itself also in the colours put on in autumn. In the best forms the leaves assume rich tints of purplish-red and crimson. There is also a form with foliage a bronzy hue more or less throughout the season, but especially when young. Cuttings. Japan. Syns., *Ampelopsis Veitchi* and *A. tricuspidata*.

V. LABRUSCA (Northern Fox G.).—Its leaves are amongst the largest, they and the young branchlets being covered on the under surface with a rusty-coloured or sometimes whitish down. In a wild

Vine growing on a gazeebo. From a photograph by Miss Willmott.

V. HETEROPHYLLA (Hop-leaved V.).—A variety of this, known as *humulifolia*, is the most beautiful of the forms of this species, and in autumn bears pretty turquoise-blue berries. It requires in most places a position on a wall in order to induce it to fruit with freedom, and succeeds better in dry, poor soil. A variegated form is pretty, the foliage being mottled with white or faint pink. A sheltered sunny position is necessary to bring it to perfection. China, Japan, and Corea.

V. INCONSTANS.—As with so many of the Vines, this shows great variety in the shape of the leaves, and this tendency

state the fruit has a musky flavour, but by cultivation it has been much improved, and numerous varieties are grown in the United States. It often ascends high trees in its own country, and may be planted in ours with this end in view. New England to Minnesota and southwards.

V. MEGAPHYLLA.—A remarkable Chinese Vine with large cleft leaves, more like a shrubby *Aralia* than a Vine. They are cut into many widely-spread leaflets, measure 18 by 12 inches at the base, their upper surface a dark green changing to grey-green on the under side. This

handsome plant is of very strong growth, quite young plants making shoots of 10 feet or more in a season.

V. MURALIS (Wall V.).—A name current in this country and on the Continent. Known in America as *Vitis Englemanni*. It is a distinct form of the Virginian Creeper, possessing leaves of the same shape, only smaller and developing equally, or even more, brilliant autumnal colours. It is self-supporting, and will attach itself firmly and climb to the tops of high walls—a useful quality.

compound form as the shoots lengthen. It is a tall vigorous climber of massive effect, with foliage thickly clustered.

SPINOVITIS DAVIDI.—Nearly allied to *V. Romaneti*, having the same bristly or even prickly character. Both this and *V. Romaneti* assume purplish-red autumn tints.

V. STRIATA.—This is a handsome Vine especially during autumn when its leaves assume a rich bronzy colour. Growing on a west wall I have seen this interesting climber 10 feet high, and with a much

Vitis heterophylla variegata.

V. QUINQUEFOLIA (Virginian Creeper).—Better known as *Ampelopsis quinquefolia*, its foliage changes in the fall of the year to various shades of crimson, scarlet, and purple. For covering arbours, walls, verandahs, or old tree stumps there is no climber which produces so brilliant an effect in so short a time. Several varieties are in cultivation, viz., *Major*, *incisa*, *hirsuta*.

V. ROMANETI. — Has large leaves, differing from all the Vines in cultivation (except *Spinovitis Davidi*) in having the branches and petioles covered with bristles or stout hairs.

V. SINENSIS.—Allied to *V. armata*, but differs from it in its variable leaves, which, at first simple, pass gradually to the

greater spread. In winter when the majority of our climbing plants have cast their leaves, this gives a pleasing contrast to the otherwise bareness of its fellows.

V. THOMSONI.—A pretty and neat-growing species climbing by its tendrils, and of graceful effect upon pillars and pergolas. The leaves are deeply cleft into five lobes, and are of a reddish-green, rich purple on the under side. This turns to a uniform crimson-purple in the autumn, but a tendency to curl up rather spoils their effect at this season.

V. THUNBERGI.—Though near *V. Coignetiæ*, is a little less exuberant in its growth; it may be used near the house, whereas *Coignetiæ*, in its almost unruly

luxuriance, is best among trees. The dark green leaves often measure a foot or more in each sense, and in autumn they take the richest shades of yellow, brown, crimson, and scarlet. Their greater brilliance, as well as their greater size, at this season help to distinguish the plant from Coignet's Vine. It is fully hardy, and thrives in any good soil, but should not be overfed with rich manure.

V. VINIFERA (Common Grape V.).—Of

Claret-coloured Vine.

the numerous varieties of the common Grape Vine the following may be named for use for walls or pergolas in gardens: *Purpurea.*—This is one of the deepest purple-foliaged Vines we possess. Although the colour becomes most intense in autumn, the leaves have a bronzy-purple tinge from the first. Var. *apiifolia* is the Parsley-leaved Vine. Its leaves are very deeply-cut, frequently into several leaflets, which are again deeply lobed. Besides these there are the Miller's Grape, with smallish leaves covered with white down, and the "Teinturier" Grape, the leaves of which are a beautiful claret colour before they fall, and among the large number of Vines grown in wine-making countries there are many worth growing for the beauty of their leaves.

V. VULPINA (Southern Fox G.). — A distinct Vine, the leaves are small (2 to 3 inches across), rounded, smooth, shining on both surfaces, and bright green. The sweet Mignonette-like perfume of the flowers of many American Vines is in this species especially noticeable. The variety *palmata* has the branchlets and frequently the petioles red. Nova Scotia to Manitoba and southwards. Syn., *V. riparia.* Other American Grape Vines worth growing, but possessing no particular value above those already described, are *V. rupestris* (the Sand Grape), *arizonica,* and *cinerea* (the Downy Grape).—W. J. B.

WAHLENBERGIA (*Tufted Hairbell*).—A charming group of alpine plants allied to the Hairbells, and mostly inhabiting the mountains of Dalmatia and Asia Minor. They are useful, free-flowering, and hardy, forming tufts with large heads of pretty, bell-shaped, upright flowers, of various shades of purple. The chief points in their culture are full exposure, plenty of sunshine, a free gritty soil, and a raised position free from stagnant moisture. All the species are true perennials, easily cultivated, vigorous, and free-flowering. They are difficult to increase by division on account of the long roots they make, but they ripen seed freely, which if sown at once rarely fails. Syn., *Edraianthus.*

W. DALMATICA.—Native of the mountains of Dalmatia, is a tufted species with narrow grass-like leaves, 2 to 4 inches in length, and flower-stems at first drooping, afterwards erect, 4 to 6 inches high, with large flowers of a violet-blue colour, in clusters which appear in July and August.

W. GRACILIS.—This is a variable species from New Zealand, with square, hairy, much-branched stems, the leaves opposite, narrow toothed, and hairy, the flowers terminal, erect, but nodding while in bud, blue, large, and attractive, flowering all through the summer.

W. GRAMINIFOLIA.—The commonest and easiest to manage, forming tufts of long grass-like leaves, and bunches of large purple flowers. It ripens seed freely, and that scattered about in the rock garden usually germinates readily.

W. HEDERACEA (Ivy-leaved Hairbell).—A native plant closely allied to Campanula. It has creeping thread-like branches, which bear small leaves and light blue flowers. There is about it an interest and grace not found in other more robust members of the family, especially when it is seen interlaced with the pink Bog Pimpernel on British bogs. Worthy of a place

for a moist spot in the rock or bog garden, and easily increased by division. It is abundant in Ireland and the south and west of England.

W. PUMILIO.—Forms a dwarf tuft of narrow, needle-like leaves of a bluish tint, half an inch or more in length, and has large flowers of a reddish-lilac or bluish colour, bell-shaped, numerous, and borne erect on short stems, coming in succession on the tuft for more than two months in May and June.

W. PUMILIORUM.—The rarest form, and although little different from *W. Pumilio*, it gives us another shade of colour, smaller and narrower leaves, a more straggling habit, and longer-tubed flowers. It is an excellent hardy plant for the rock garden, where on raised mounds of free gritty soil it grows and flowers vigorously.

W. SAXICOLA.—A beautiful species from the mountains of New Zealand, with leaves in close tufts and pretty flowers which first appear in June and keep coming in succession till November. It is easily raised from seed, and varies greatly from white to deep blue. The best forms can be increased by division.

W. TENUIFOLIA.—A dwarf compact growing species, with hairy stems, short slender leaves and small flowers, six to ten in a head, violet-blue or whitish-purple.

WALDSTEINIA (*Barren Strawberry*).—Dwarf rosaceous plants, three of which, *W. geoides*, *W. fragarioides*, and *W. trifolia* are in cultivation. The last is the best, but not one is ornamental enough for border culture, but only for banks and dry walls.

WATSONIA (*Bugle Lily*).—Beautiful bulbous plants of the Iris family. In the southern counties some of them succeed in open borders, but elsewhere they are tender. There are about a dozen species and about as many varieties, half of which are variations from *W. Meriana*. All are from S. Africa, their headquarters being the Cape. There is much variety of colour, and "mixed" selections are offered by the growers. The commonest species seem to be *W. Meriana*, *W. coccinea*, *W. iridifolia*, *W. rosea alba*, *W. humilis*, *W. angusta* (also known as *W. fulgida*), and *W. aletroides*. Choice kinds with pure white flowers are *W. Ardernei*, where they are borne on long branched stems, and *W. iridifolia O'Brieni*, which is like *W. rosea* except in colour. These are true Watsonias, and have finer flowers than the other sections of the genus. The white Watsonia (*W. alba*) is a lovely plant, flowering in early summer. Treatment similar to that recommended for the early Gladioli will suit them.

WEIGELA (*Bush Honeysuckle*).—Graceful and hardy flowering shrubs, summer-leafing, with showy clusters of bloom ranging from pure white to dark crimson. They have long been deservedly popular, being elegant, quick in growth, and beautiful in bloom. A multitude of varieties have sprung from *W. floribunda*, *W. grandiflora* (known also as *W. amabilis*), *W. rosea*, and *W. hortensis*. These, natives of China and Japan, have been

Weigela grandiflora.

introduced within the last fifty years, and so much hybridised that they are rarely found pure. The most valuable sorts have come from *W. grandiflora*, which has the largest flowers, while the smaller, but more numerously-flowered kinds, have originated from *W. rosea* and *W. floribunda*. The varieties have been raised chiefly on the Continent, as may be inferred from their names. The best of the older kinds are: Abel Carrière, numerous large flowers of soft pink; Isolinæ, large flowers of white or pale rose with yellow markings; Van Houttei, large and showy white and red flowers; *Lemoinei*, numerous small deep crimson-red flowers; *Groënewegenei*, one of the best, the flowers being large, of pink

or pale rose, with a yellow blotch; *striata*, a pretty sort, having flowers striped with red and white; *Stelzneri*, with numerous deep red flowers; *Lavallei*, with numerous crimson-red flowers; *hortensis nivea*, more spreading than that of others, with larger and paler foliage, and large pure white flowers; and *candida*. Good new kinds are Conquête, deep rose, with the largest flowers yet seen in these plants; Dame Blanche, large creamy-white flowers with a yellow throat; Descartes, crimson-purple; Diderot, deep bright red; Émile Gallé, deep red; Eva Rathkie, one of the best, deep rich crimson; *floreal*, pink, and very early; Gloire des Bosquets, very free in its deep rosy flowers; Héroïne, rosy-white, with fine foliage; *hortensis nivea*, pure white; Perle, creamy-white edged with rose; Montesquieu, wine-purple; Mt. Blanc, the best white; Othello, bright rose; Pascal, blood-red; Pavillon blanc, blush-white; and Saturne, rosy-carmine. The new Japanese species, *D. præcox*, bears large pink flowers with a yellow throat, opening nearly a month earlier than other kinds. Its influence as a parent is already seen in a race of early-flowering hybrids. All sorts are of free habit if planted in good soil in an open position. They should never be crowded, but grown as isolated groups on lawns, or placed on the margins of shrubberies. Weigelas make large bushes, 6 to 10 feet high and as much in diameter, and their graceful drooping branches are ornamental, even when leafless in winter. They should be top-dressed annually with good rich soil, and pruned, leaving the vigorous stems and the branches that yield the finest bloom.

WHITLAVIA.—*W. grandiflora* is a beautiful herb about a foot high, allied to the *Nemophila*, with an abundance of showy bell-shaped blossoms of a rich deep blue. There is a white variety, and also one called *gloxinioides*, with white and blue flowers. These are hardy annuals, and may be sown either in autumn or in spring in the open border, in good friable soil. California.

WISTARIA (*Glycine*).—The noblest of all woody climbers introduced to Europe. Besides giving a beautiful covering for houses, pergolas, etc., the Wistaria is of great value in other ways, and can be grown on trees. An old Oak that has seen its best days would be a suitable support for it. In getting this or any other climber to grow on living trees, the difficulty is at the start, chiefly because of the living roots of the tree on which it is to grow, and then the Wistaria should be planted well away from the trunk where sun and rain can reach it.

It now and then makes very graceful standards at least in the good situations in the south, and bowers and most beautiful lace-work for summer-houses may be formed with this climber alone. A strong framework of tent shape might easily be covered with it. The timbers or irons of the roof might be close enough for the foliage of the Wistaria to cast a slight shade over the interior, and the motive would be the grace and beauty of the shrub when in flower, garlanding it, and forming a temple of graceful bloom.

W. BRACHYBOTRYS. — Although many years since a Wistaria under this name was brought to Europe from Japan by Siebold, but little can be said of it. Judging by published figures, it appears to be a dwarf variety of *W. chinensis*, with racemes of the same blue-purple flowers, only shorter, as the specific name suggests. Var. *alba* has been spoken highly of in the United States, but I have never seen it.

W. CHINENSIS.—The oldest kind introduced, and the most beautiful. Its single and double white forms are beautiful, although neither of them have the freedom of the true plant. The double variety is a poor thing.

W. FRUTESCENS.—The only species found wild in the New World. It is a climber, but not a strong grower, the flowers pale blue-purple, arranged densely in racemes 3 to 8 inches long in June. There are two varieties in cultivation, one, *magnifica*, has racemes over 1 foot in length; the second is a white form.

W. MULTIJUGA (Japanese Glycine).—A very beautiful plant with racemes often between 2 and 3 feet long, flowering a fortnight later than the Chinese Glycine, the blossoms much less closely packed on the spikes. The colour varies in different plants, but it is always a variation of delicate lilac and white. The variety *alba* has flowers wholly white, and there are two forms of the plant in cultivation, one with shorter racemes. The newest form is one called *rosea*, with flowers of a delicate shade of rosy-lilac. Variety *Russelliana* has dark flowers with a pale central blotch.—W. J. B.

WOODSIA.—These pretty deciduous hardy Ferns are admirably suited for

Wistaria multijuga on a tree.

a northern position in the alpine or rock garden. They are impatient of sunshine, and drainage should receive special attention. They should have a mixture of fibry peat and loam, which has some broken-up sandstone mixed with it. It is a good plan to place Woodsias between little blocks of sandstone which just peep out of the soil. These blocks of stone could be covered with Sedums and other flowering rock plants. The best hardy species are *W. ilvensis* and *W. alpina*; there is also a very beautiful N. American kind named *W. obtusa*.

WOODWARDIA. — Noble ferns, of which a few are hardy. All are handsome, with broad beautifully arching fronds, which are especially ornamental if seen a little above the level of the eye. Woodwardias thrive under the ordinary conditions of the hardy fernery, and succeed in a shady position if they have a light peaty soil that is moist in summer. The principal hardy kinds are *W. areolata* (*angustifolia*) and *W. virginica*, both from N. America; *W. japonica* and *W. orientalis*, from Japan; and *W. radicans* from Madeira. *W. radicans* is the tenderest, and requires a sheltered position, and perhaps protection in severe cold.

XERANTHEMUM.—*X. annuum* is a hardy annual, one of the prettiest of everlasting flowers, growing about 2 feet high, with abundant white, purple, and yellow double, single, and semi-double blossoms. A packet of mixed seed sown in any ordinary garden soil in March will give a variety of colours. The principal kinds are—*Album*, white; *imperiale*, dark violet-purple; *plenissimum*, dark purple, double; *superbissimum*, double, globe-flowered; and Tom Thumb, a compact dwarf variety. The flowers are excellent for cutting, and if dried are useful for winter decoration. S. Europe.

XEROPHYLLUM (*Turkey's Beard*). —*X. asphodeloides* is a beautiful tuberous-rooted plant with the aspect of an Asphodel, forming a spreading tuft of grassy leaves, its tall flower-stem terminated by a raceme of numerous white blossoms. It grows well in a moist, sandy, peaty border, and in the drier parts of boggy ground. Pine barrens in N. America.

X. TENAX.—This very beautiful species is found wild in various parts of N. America, especially in Pine barrens on the west side of the Continent. The flower-stems 2 to 5 feet high, the raceme varying from 1 to 2 feet long, the flowers crowded and attractive, the segments white with a violet centre. Division or seed.

YUCCA (*Adam's Needle*).—Very distinct evergreen plants of fine form and of value where effect is sought. They are hardy for the most part, and all of the kinds mentioned are vigorous but not so good on cold soils. The free-flowering kinds, *Y. filamentosa* and *Y. flaccida*, may be associated with any of our nobler autumn-flowering plants. Even species that do not flower so often, like *Y. pendula* and *Y. gloriosa*, are fine if grown in the full sun and in good soil. Division of the stem and the rhizome.

Y. ANGUSTIFOLIA.—The smallest of all the Yuccas. When in flower it is not more than 3 feet high. Its long strips of leaves are nearly 1½ feet in length, but are not more than ¼ inch in width. They are thick and rigid, of a pale sea-green colour, and fringed with white filaments. The plant bears a simple raceme of white flowers slightly tinged with yellow. Till it is more plentiful it should be grown in warm borders, in well-drained sandy loam. N. America.

Y. CANALICULATA.—The leaves are entire—*i.e.*, neither toothed nor filamentose at the margin, and form a dense rosette on a stem 1 or 2 feet high. Each leaf is 20 to 24 inches long, and 2 to 2½ inches broad at the middle, strong, rigid, and deeply concave. The flowers are creamy-white and borne in a large panicle 4 or 5 feet high. It is well suited for isolation or groups, but till more plentiful should be encouraged in favourable positions and on warm soils. Mexico.

Y. FILAMENTOSA. — Has apple-green leaves and a much-branched panicle, 4 to 6 feet high. It varies very much when raised from seed. One variety (*concava*) has short, strong, broad leaves, which are more concave than those of the type; another variety (*maxima*) has narrow leaves which, though nearly 2 feet long, are only 2½ inches broad. N. America.

Y. FLACCIDA.—A stemless species, somewhat resembling the last but smaller, with a downy branching panicle, 3 or 4 feet high, and close rosettes of leaves 18 to 24 inches long, and about 1½ inches broad at the middle. They are often fringed with filaments, the young ones nearly erect, and the old ones so abruptly reflexed in the middle as to appear almost broken. N. America.

Y. GLAUCESCENS. — A free-flowering kind, with a panicle 3 or 4 feet high, and sea-green leaves, about 18 inches long, with a few filaments on the margins. The

flowers are greenish-yellow, when in bud tinged with pink, which gives the whole inflorescence a peculiarly pleasing tone. It is very useful for groups, borders, isolation, or for placing among low shrubs. There is a pretty form with a broad band of pale yellow down the middle of the leaf. N. America.

Y. GLORIOSA.—A large and imposing Yucca of distinct habit and somewhat rigid aspect. Its flower-stem is over 7 feet high, much branched, and bears an immense pyramidal panicle of large almost white flowers. Its numerous leaves are stiff and pointed. It is one of the noblest plants in our gardens, suitable for almost any position. In many gardens of proved hardiness. N. America.

Y. PENDULA.—The leaves of this, at first erect and of a sea-green colour, afterwards become reflexed and deep green. Old established plants standing alone on the grass are pictures of grace and symmetry, from the lower leaves which sweep the ground to the central ones that point up as straight as a needle. There is no plant more suited for grouping near flower-beds or for associating with them. N. America. Syn., *Y. recurva*.

Y. TRECULEANA.—This species is one of the most remarkable, both from its habit and from the dimensions of its leaves. Like many Yuccas of its family, young specimens of *Y. Treculeana* differ considerably from those which have reached maturity. Thus, while the leaves of young specimens are bent, and generally inflected, those of mature specimens are erect, rigid, long, and straight. The stem of the plant is about 10 inches in diameter, and furnished on all sides with leaves about 4 feet long, straight, thick, and deeply channelled, very finely toothed on the edges, ending in a stiff, sharp point. If placed singly it is excellent for banks and knolls, and is also suitable for the boldest groups. Texas.

ZANTHORIZA APIIFOLIA (*Yellow Root*).—A curious dwarf shrub, native of the eastern States of America, and so modest in flower that it has never been popular in gardens. In autumn the leaves turn a deep rich colour, and the effect is very good when grouped. It will grow in any poor soil, and is usually not more than 2 feet high and quite hardy.

ZANTHOXYLUM (*Toothache Tree*).—A large family of trees and shrubs, in the main too tender for this country, the few hardy kinds coming mostly from China and Japan, with one of minor interest from N. America. In appearance they are unlike other shrubs, often with handsome leaves cut into leaflets, and small white or greenish flowers followed in some kinds by ornamental fruits. The best in this way is *Z. piperitum*, or Japan Pepper, in which the glossy black berries are so abundant as to be exceedingly attractive. *Z. planispinum* is an interesting shrub of dense growth, with glossy evergreen leaves and branches covered with stout compressed spines. *Z. Bungeanum* also bears evergreen leaves of a cheerful green, and more finely divided than in *planispinum*. The finest kind, *Z. ailanthoides*, a tree of 60 feet, is said to be one of the most beautiful trees of Japan. Increase by seeds, suckers, or root-cuttings.

ZAPANIA (*Creeping Vervain*). — *Z. nodiflora* is a pretty, spreading trailer, with prostrate stems 2 or 3 feet in length, which late in summer bear small round heads of little purplish flowers. Suitable for the rougher parts of the rock garden, for borders or edgings in free warm soil. Asia and America. Syn., *Lippia nodiflora*.

ZAUSCHNERIA (*Californian Fuchsia*).—*Z. californica* is a bright perennial, hardy in warm soils in sheltered places, growing 12 to 18 inches high, and yielding an abundance of gracefully drooping bright vermilion flowers during summer and autumn. It flourishes in sandy loam in the rock garden, and grows capitally on an old wall. *Z. mexicana* is sometimes classed as a variety, but in my garden is a poor plant. Both grow well on dry walls. California. Division.

ZELKOWA (*Zelkowa Tree*).—Handsome summer-leafing trees, hardy, distinct in appearance, and yielding valuable timber, yet seldom planted. They grow best in moist alluvial soils, and are well adapted for avenues and roadsides. They do not appear to bear seed in this country, and for this reason are commonly increased by grafting on the Common Elm, though such means can never give the best results in growth and beauty. The fine individual trees in various parts of Britain show the Zelkowa to be well suited to our climate, and we could wish that it was more used by planters, especially for wet soils, being remarkably free from insects and disease. There are four kinds, as follows :—

Z. ACUMINATA (Japanese Z.).—A useful and handsome tree of about 100 feet,

with a straight stem and a broad round top. The leaves vary much in size even on the same twig, being 3 to 5 inches long, tapering to a point, 1½ to 2½ inches wide, slightly hairy on both sides, and edged with coarse sharp teeth. The longer points, sharper teeth, more numerous nerves and leathery texture, together with the fact that they hang longer, may enable any one to tell the leaf of the Japan Zelkowa from that of the better-known *Z. crenata*. The timber is hard, durable, and fine-grained, taking a high polish, and valued for its many industrial uses. Japan.

Z. CRENATA (Common Z.).—A quick-growing, handsome tree of marked characteristics, the main branches rising erect from one point, and spreading so slightly as to give an easily recognised form, each branch a tiny tree in miniature. Mature trees are 80 to 100 feet high, with a fine columnar stem covered at first with smooth bark like Beech or Hornbeam, though in old trees it becomes furrowed and falls away as in the Plane. The leaf is often like that of the Elm, only smoother, more glossy, and with more rounded teeth; but this character is so variable that leaves like Elm, Beech, and Hornbeam may often be found on the same branch. Asia Minor and Caucasus. Syn., *Planera Richardi*.

ZENOBIA.—*Z. speciosa* is one of the most beautiful shrubs in the Heath family, about a yard high, with small roundish leaves of a pale green. In the variety *pulverulenta* the leaves are almost white and covered with a mealy glaucescence; flowers, white and wax-like in form, like those of Lily of the Valley, come in summer in beautiful loose drooping clusters. A well-flowered plant is charming, and lasts for some weeks in beauty, thriving in a peaty soil. It comes from the southern United States, and is therefore not absolutely hardy.

ZEPHYRANTHES (*Zephyr-flower*).—This beautiful flower has been termed the Crocus of America. There are about fourteen species — low-growing bulbous plants, with grassy leaves, which appear in spring with or before the Crocus-like flowers, which are white or rosy-pink, large and handsome. Zephyranthes require rest during winter, and at that season are best kept dry. In spring they should be planted out in the full sun in sandy soil. Offsets.

Z. CANDIDA (Swamp Zephyr-flower).—The hardiest and best of the group, making tufts of evergreen Rush-like leaves, and glistening white flowers with golden stamens, opening flat in the sunshine from August to October. The buds are prettily shaded with rose on the outside. In warm sandy soils the bulbs do well, planted like the Belladonna Lily in narrow borders against a greenhouse or any place —even a gravel walk — where they get a thorough baking and plenty of moisture from time to time. Cool and heavy soils do not suit the plant at all, nor does it seem to do so well in the west as in the drier climate of E. and S.E. Britain, often failing to flower when it does not die out. In the light soils of Surrey and at Kew it is charming, ripening seeds which germinate and grow readily, spreading into groups of beautiful effect as an edging to warm borders, or even as a carpet plant. *Z. citrina* is a scarcer kind allied to *candida*, but distinct in form and in its golden flowers. A cross between these two species has given *Z. Ajax*, which is like *candida* in character and time of bloom, but quite new in its soft yellow flowers, over 2 inches across, prettily flushed with rose on the outside.

ZINNIA.—Half-hardy annual plants of splendid colour and thriving best in our country on good warm soils. Among the most effective of summer-blooming plants, they flower well until autumn, their blooms not easily injured by inclement weather, but retaining freshness and gay colour when many flowers present but a sorry appearance. In mixed borders, and in beds among sub-tropical plants, well-grown Zinnias are always attractive, but require a deep loamy soil and a warm open situation. Seed should be sown in gentle warmth. Nothing is gained by sowing before the middle or end of March, as, if the young plants have to stand before being planted, they become root-bound and seldom fully recover. If the tissues once harden so much as to bring the young plants to a standstill, there will be little chance of rapid progress when finally set out. It is not advisable to plant them out much before the second week in June, as they are sensitive to atmospheric changes, and are completely ruined by a few degrees of frost. Zinnias have been a total failure with me, not showing a trace of their fine beauty as one sees it in Austria and Italy, and therefore I have thought it not worth the place that might be given to better things. They are plants that wet weather disfigured very soon.

ZIZANIA (*Wild Rice*). — A small group of hardy grasses, excellent for

planting in water, or in wet ground at the waterside. *Z. aquatica* is remarkable for the fine effect of its Oat-like stems, 8 to 10 feet high, with broad vivid-green leaves and graceful bronzed plumes of nearly a yard long, the seeds of which are greedily sought by fish and water-fowl. The plants thrive only in water with a soft mud bottom, and though they will often sow themselves, the seeds are so tempting to birds that the safer way is to keep a store of them in a bottle of water through the winter, planting the seedlings in shallow water during June. The plant is of annual duration, and the seeds perish if kept dry. N. America.

Z. latifolia, from Japan, is a perennial kind, shorter and of more drooping habit. It makes spreading tufts of a good size, but does not bear its purplish plumes freely in this country.

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